FEEDSTUFFS®

★ A WEEKLY NEWSPAPER ★

FOR THE FEED MANUFACTURER, JOBBER, BROKER and DEALER

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Broiler Prices Weaken After Recent Strength

Broiler prices were weakening this week after making some sharp advances during the first part of January.

Reports at mid-week indicated adequate offerings for slow to fair demand at a number of major points.

In the Delmarva area, for example, prices on Jan. 30 were around 19 to 21¢ lb. after averaging about 23¢ during the previous week.

A Delmarva processor said he believed the price would hold in the 19-22¢ range for the next few weeks.

Others felt that if placements continue high, prices wouldn't be able to hold.

Delmarva observers, commenting on the recent broiler price strength, said that markets got caught short of chickens during the first part of

(Turn to BROILERS, page 69)

FREIGHT INCREASE POSTPONED BY ICC

WASHINGTON—The proposed increase in freight rates scheduled to go into effect Feb. 1 has been postponed to Feb. 15 by the Interstate Commerce Commission following protests from several trade groups. The postponement covers the entire petition for all commodities and accessorial service. In the case of grain this involves free time and demurrage charges for grain at seaboard terminals.

Selling Pressure Depresses Alfalfa Below Producer Cost

By MARTIN E. NEWELL
Feedstuffs Staff

KANSAS CITY—An unprecedented winter price slump has carried dehydrated alfalfa prices to a point below the cost figure of most dehydrators. For the first time on record, dehydrated alfalfa can be purchased in January at prices as low or lower than in the midsummer period of flush production. The price slump is putting a severe financial penalty on dehydrators, and for that reason it is felt that present levels will not persist for long.

Today's seller of dehydrated alfalfa pellets is losing about $9 a ton, the cost of carrying the product in storage for the past six months. This $9 is made up of a charge of $1 ton per month for building and maintaining the storage plant ($6 average since July) plus an in and out cost of $1 ton average for moving the pellets in and out of storage and, in addition, estimated insurance and bank interest charges of another $2 over the six-month period.

Since there was little or no profit in pellets at prices which prevailed last July when they were produced, it is obvious that every sale at current prices is cinching a loss for the producer.

In 1955, the U.S. Department of Agriculture made a study of dehydrating costs. The five lowest cost plants in that survey had average dehydrating costs of $25.89. Adding to this a conservative $8.50 ton for hay, $2.50 for pelleting and an average of $5 ton for freight to Kansas City, would mean a total cost of $41.89 for bulk pellets, basis Kansas City. Some plants would be higher than this. A few might be lower.

$9 to $12 Below Costs

Thus, current prices are anywhere from $9 to $12 below total costs, and for that reason are not likely to stay long in the present range. As is usually the case, markets of this kind get into a cycle of panic; the weaker the price the greater the pressure to sell and the greater the reluctance to buy.

One factor in the rush to unload has been the local banker who financed stocks in storage and who began to feel a few weeks ago that these loans should be reduced. This forced some sales the dehydrator himself did not want to make. Also, buy-

(Turn to ALFALFA PRICE, page 65)

"Building for Tomorrow" to Be Theme Of Midwest Convention Feb. 26-27

KANSAS CITY—"Building for Tomorrow," with predictions and forecasts of things to come, will be the theme of the annual convention of the Midwest Feed Manufacturers Assn., to be held Feb. 26-27 at the Muehlebach Hotel in Kansas City.

Among the general subjects to be covered by industry, college and other speakers will be feed financing, advances in feeding, new ingredient developments, future association projects, the changing agriculture, new concepts in selling and a congressman's view of the feed industry.

Registration and a board of directors meeting late Tuesday, Feb. 25, will precede the opening of the convention Wednesday, Feb. 26.

Oscar Straube, president of Pay Way Feed Mills, Kansas City, will discuss "Feed Financing Today—and Tomorrow," and a panel will take a look at the same subject. They are L. F. Van Stone, Uncle Johnny Mills, Houston; Dave Ross, Nutrena Mills,

(Turn to MIDWEST, page 65)

Price Riddle Compounded By New Corn Loan Estimate

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON—The most recent factor to be tossed into the corn price outlook is an estimate that 400 million bushels from the 1957 crop will be going into government loan this crop year.

This estimate, provided by U.S. Department of Agriculture officials, is admittedly on the high side.

Discussion of this estimate with traders indicates that the figure is not encouraging to those who believe that corn prices can firm up from recently depressed levels.

On the other hand, USDA officials say that they think the corn price is touching or about to reach a bottom and that it will not break much below present levels.

Watchers of the corn market thus have a choice of views, but most opinion appears to be bearish on nearby corn prices.

USDA loan program specialists say there will be a maximum movement of about 220 million bushels into

(Turn to CORN PRICE, page 65)

SENATE VOTES FUNDS FOR K-STATE BUILDING

TOPEKA, KANSAS—The Kansas State Senate Jan. 27 passed by voice vote an appropriation of $1,151,644 from the general revenue fund for rebuilding Waters Hall at Kansas State College. This building was damaged by fire last August. As a result, the pilot flour mill and other facilities of the department of flour and feed milling industries were destroyed. The legislative action was taken over the objections of Democrats in the Senate who said no provision has been made for raising the money. A second bill providing over $500,000 for improvements of colleges and universities passed without objection. Gov. George Docking has recommended in his budget message that funds be reserved in the educational building fund for repair of the damage to Waters Hall.

FEEDSTUFFS *Features This Week*

INTEGRATION: On page 46, the manager of a large cooperative describes his organization's "integrated plan."

SELLING: Building goodwill among farmers is a basic part of a New York feed mill operation outlined on page 42.

FEED GRAIN PROBLEM: The problem of surplus feed grains comes in for discussion on page 32.

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SPECIAL ALFALFA REPORT

The alfalfa dehydrating industry is given special attention in this issue which is published just prior to the annual meeting of the American Dehydrators Assn. Feb. 6-8 at the Broadmoor Hotel, Colorado Springs, Colo. Well known college and industry authorities have written special articles on dehydrated alfalfa research, marketing and industry trends. The articles are specially prepared for the feed manufacturer and the producer, processor and seller of dehydrated alfalfa in a special section following page 38.

ADA Service	1a	Gas Storage Report	16a
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Citrus Pulp Prices May Hold Near Present Levels

By Special Correspondent

ATLANTA—Severe freezes which hit the Florida citrus region this winter have reduced citrus pulp and meal output for the current 1957-58 season and brought higher prices on these commodities.

However, prices may hold around present levels and supplies should be adequate for demand under these conditions, market reports indicate.

(Also see accompanying story from the Citrus Processors Assn.)

After early government estimates had predicted a bumper crop of oranges and grapefruit to be grown in Florida during 1957-58, sharp revisions had to be made. During early December a severe cold wave, with

(Turn to CITRUS PULP, page 69)

FEEDSTUFFS

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A Primary Product

READERS of a few years' standing will recognize the swatch of green forward of the midsection of this issue as the identifying mark of Feedstuffs' annual special alfalfa section. The 36-page section, starting after page 38, contains a great deal of information about alfalfa meal and about the industry which produces it. Your close attention to the articles included in the section is invited.

It has been the happy privilege of this publication to follow the development of the alfalfa dehydrating industry from its early days up to the present. The story through the years has been one of steady advances in the stature of the industry. And this achievement has been the result of constant efforts to improve its service to the feed manufacturing industry and its cause of better nutrition for livestock and poultry. Some of the more recent industry developments—such as inert gas storage facilities, pelleting and blending—come to mind as examples of the industry's desire to offer a standardized, uniform product on which feed men can rely to provide specified nutritional content throughout the year. The product contains not one or two, but a variety of valuable nutrients.

★ ★ ★

A PROGRESS-MINDED industry, the dehydrating industry also has been research-minded. Through an extensive research program at colleges and universities sponsored by the American Dehydrators Assn., much has been learned about the values of alfalfa meal in rations. Scientists have been invited to put the product to the test of economic value, and in working with these researchers the industry has helped contribute to improved relations between industry and colleges. This ADA program is in its tenth year and has involved about 40 projects at various experiment stations.

Among the major feed ingredients, alfalfa meal is the only one made specifically for feed use. Because it is a primary product, produced for its own inherent values, it can be made to fill specific needs of its users most readily. There is little doubt that this fact will continue to dominate future progress of the dehydrating industry.

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Farm Law Debate

THE word out of Washington this week is that no sudden action is likely on new farm legislation. Farm organizations are still putting forth their proposals at committee hearings, and it is likely that debate will be lengthy and the tugging and hauling among the legislators as prolonged as usual when diverse and complex matters must be considered. The chairman of the Senate Agriculture Committee, Sen. Allen J. Ellender, says that he will not accept a piecemeal farm price support bill.

Secretary Benson, with the full backing of the President, has his neck way out on a program already denounced by the politically loud. What will come of it is a big question. The program could possibly have more appeal to voting citizens, including farmers, than its opponents recognize.

The Secretary's objectives, as outlined before Congress reconvened, reflect a philosophy of freedom of individual enterprise that has been missing in many present and past farm programs. The administration's proposals call for "elimination of undesirable controls, thus removing the shackles from farmers' efficiency." Recognition of the technological revolution in agriculture is inherent in this program, along with confidence in the ability of farm people to make the best decisions regarding the use of their own resources.

Agriculture has a new look, and agricultural legislation should look it squarely in the face and recognize it. Mr. Benson's missionary role may turn out to be more politically popular than it has been made to appear.

A FEEDSTUFFS FEATURE

FORMULA FEEDS: HOW'S BUSINESS?

A modest improvement in many areas came as expected during the week to offset a mild slump noted the previous week. The surpriser was the Southwest, particularly in the area covered by heavy snows, where a drop in sales was reported. Weather otherwise seemed to be the major factor. Some areas where wet corn has been a big part of the feeding picture reported indications that the supplies of wet corn were beginning to wane. The feedstuff price index advanced to 74.7 compared to 74.4 the previous week and 85 a year ago. The feed grain index climbed to 61.5 as against 61.1 the previous week and 76.1 a year earlier. (Feed ingredient details on pages 66-69.)

Northwest

The very mild slump in formula feed sales indicated a week ago continued during the past week. Mill representatives emphasized, however, that business was ahead of a year ago and was looking up generally.

Sales of hog concentrates continued to be the major feature. Operators said the sales have been steady for several weeks. A slight pickup in cattle feed sales was noted, probably because of a snow covering, the mill representatives said.

Chick starters were beginning to move, but the big pickup was not expected for another couple of weeks. Dairy sales continued to drag. Some increases in dairy feed sales were reported, but they were said to be nothing unusual and that dairy feeds have been moving steadily, if slowly.

Mills were running at about normal capaicty. Only one mill representative reported the need for extending shifts, but he indicated that the backlog of orders was smaller than the previous week.

Feed prices remained unchanged to down very slightly.

Central States

Feed manufacturers experienced a slight lull in business during the week ending Jan. 29. Part of the cutback was blamed on the generally heavy snows over the area which halted truck deliveries in some spots.

On the whole, however, business was not bad—only slightly down from the unexpectedly fast pace set early in the month. January tonnage figures were expected to be good. It was believed January probably will run ahead of the same month a year ago. Trade observers said some inventory adjustments near the end of the preceding year permitted inventories to get low, and buying was necessary after the turn of the year to replenish supplies. There was some feeling that pipelines were approaching the full mark again.

Prices were a little softer, a fact which discouraged some buyers, who held off hoping that the dip would go further.

Southwest

General formula feed business in the Southwest seemed to be slower this week than last. With few exceptions, mixers noted that sales slacked off. They were at a loss as to what to blame it on. The slowdown was particularly surprising to many since they expected a better demand following last week's snow.

The western and southern parts of the Southwest escaped the big snow, however, and cattle feed continued to move about as it has been. What upturn has been seen here was attributed to the need for breeder stock to receive good rations for the approaching calving time. Dairy feed was moving well in several areas, but promotions were helping stimulate the business over what would be considered the normal pace.

Even in the slow-down, the chick starter business continued to show up in better volume than a year ago. Mixers were not sure whether it meant only that chicks were being put down earlier than a year ago, or that there would be substantially better business from a reappearance of many backyard flocks, missing last year. Broiler feeds were in good demand. The firm end-product market continued to lend optimism to this segment of the industry.

Although suffering along with the general line of feed, hog rations continued to account for substantial volume. Despite this fact, there were reports that many hogs were being sent to market after having been fed hardly anything but wet corn.

Mill running time ranged from four to seven days, although the busy mill was a rare exception. Most mills were running five days, but extra shifts were skimpy since backlogs were dwindling. Price lists were expected to be mostly unchanged, although some feeds were expected to be up 50¢ and some down that much, depending on when pricing was done.

Northeast

Sales improved, with some mills experiencing the increase in dairy feeds and others in egg mashes.

In some instances dairy concentrates weren't being taken quite as well as they were a month ago because some farmers were running out of grain. However, there still were large supplies of grain on the farms and some trade sources said the usual March or April switch from mixing to complete feeds may not be felt as much this year.

Chick and broiler starter feeds were moving up a little and broiler feeds were being well taken with the higher prices.

Broiler levels in the East reached 22¢ lb. Egg prices were just about steady-to-firm.

The ingredient market continued mixed, with grains in poor shape. Corn held about steady but oats were off 1¢ and barley was down 2¢.

Soybean oil meal, cottonseed oil meal and gluten meal held steady in the protein group, with linseed oil meal up 50¢.

Among the animal proteins, fish meal had a little weaker undertone but meat scraps were strong and asking prices were $2.50 higher.

Hominy feed was off 50¢ to $1 in the middle protein group. Brewers' grains were strong and up $1. Gluten feed and distillers' grains held unchanged. Alfalfa meal was weak and was quoted in a wide range of prices.

Erratic flour mill running time, coupled with steady spot demand kept millfeed prices firm and held shipping positions comfortable.

Running time of formula feed manufacturers averaged 40 hours. One mill was up to 44 hours.

Southeast

Feed business held generally good for the most part. A slowdown was noticed during the Southeastern Poultry & Egg Assn. meeting in Atlanta, which was well attended by a large number of feed manufacturers and feed dealers, along with feeders.

Broiler markets continued to hold recent unexpected price advances, and supplies were barely adequate to meet demand. This situation was supposed

(Turn to MARKETS, page 70)

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Comparison of Soybean, Cottonseed Meal Set For Processing Clinic

NEW ORLEANS—Differences between cottonseed and soybean meals will be the subject of a discussion scheduled for the annual Cottonseed Processing Clinic Feb. 3-4 at the Southern Regional Research Laboratory here.

Dr. Harold L. Wilcke, assistant director of research for Ralston Purina Co., St. Louis, will speak for the feed manufacturers in the discussion. Garlon A. Harper, director of the research and educational division of the National Cottonseed Products Assn., Inc., will give the producer's view of the question and Dr. Carl M. Lyman, head of the department of biochemistry and nutrition, Texas A&M College, will present the findings of the research scientists.

A panel discussion will follow the formal talks.

Also on the program is Dr. V. L. Frampton of the Southern Utilization Research & Development Division, who will give a resume of poultry feeding tests as part of the section on developments in improving the nutritive value of cottonseed meal for poultry.

Among other topics will be a discussion of progress in the development of cotton producing seeds which are free of gossypol by Scott C. McMichael, geneticist with the U.S. Cotton Field Station of the U.S. Department of Agriculture.

Grain Trade Cancels Meeting With USDA

WASHINGTON—A meeting of U.S Department of Agriculture officials and a nine-man group from the grain industry, set up to determine some common ground for agreement on subsidy programs for corn and other feed grain, has been canceled. It was scheduled for Feb. 4.

Representatives of the grain trade had earlier sought the meeting, but called it off because of considerations not previously known.

Grain industry sources say the USDA had planned a storage industry advisory committee session in Kansas City on Feb. 14, and that the industry feels that this meeting will develop more factual material concerning storage problems and the over-all inventory management techniques which the USDA has been following. The Feb. 4 meeting seemed premature in view of this latter development, they said.

ELEVATOR MANAGER NAMED

EFFINGHAM, KANSAS—William Hinz, 49, farmer, has been named manager of the Effingham Cooperative elevator here, formerly the Pinder Grain Co. Robert Kelley, who has been associated with the elevator, will continue with the firm.

Washington Feed Meeting to Include Production School

SEATTLE—The accent will be on feed production and mill modernization when feed men gather for the first day of the Washington State Feed Assn.'s annual convention Feb. 13 at the Chinook Hotel in Yakima.

A feed mill production school will be held on Feb. 13, and then the regular convention program is scheduled for Feb. 14.

The program announced by John G. Wilson, association manager, Seattle, indicates that emphasis will be on mill modernization during the school. Speakers will include feed and equipment industry experts. Duane Tyler, program committee chairman, will introduce the modernization theme.

Other speakers and their subjects include G. F. Thomas, Prater Pulverizer Co., Chicago, grinding methods; G. A. Carlson, Strong-Scott Mfg. Co., Minneapolis, mixing; Robert Schonfisch, Richardson Scale Co., automation; Art Stegner, Butler Mfg. Co., Kansas City, bulk storage; J. H. Waldron, Sprout, Waldron & Co., Muncy, Pa., conveying, and Harold Fjarlie, East Stanwood, Wash., a new feed mill. Robert Adelman will moderate a question and answer session.

The second day of the convention will include talks by Rex Parsons, manager of the Washington Fryer Commission; Charley Embree, a world traveler; Edward McMillan, National Bank of Commerce, Seattle, discussing business prospects; Sen. Henry M. Jackson of Washington and Dave Livingston, well known farmer-speaker from Washington, Iowa.

Special events Feb. 14 will include a men's lunch, ladies' luncheon and, in the evening, a "Sunshine Hour," buffet dinner and dancing. There also will be a "Sunshine Hour" the evening of Feb. 13, courtesy of Central Washington Dealers.

Feed Man Receives Award at Fort Smith

FORT SMITH, ARK.—Collier Wenderoth, Jr., president of the O.K. Feed Mills, Fort Smith, received the Distinguished Service Award of the Fort Smith Junior Chamber of Commerce at a banquet Jan. 21.

The award was presented on the basis of his contribution to community welfare, leadership ability and progress in personal and business life.

Mr. Wenderoth is a member of the boards of Fort Smith Girls Club, Fort Smith Junior College, the local Red Cross chapter, 4-H Foundation, Exchange Club and Community Chest. He also is the current president of the Midwest Feed Manufacturers Assn. He has been a Sunday school teacher for 10 years.

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HERE'S NEWS! Hubbard Sunshine Dealers are telling their customers "End Baby Pig Scours or Your Money Back!" That's right . . . HUBBARD'S SUNSHINE Baby Pig Pellets, when fed according to directions, are guaranteed to end scours. They're high in nutritional value and sugar-sweet. Baby pigs go for 'em fast. Why not cash in on this company-backed guarantee and build repeat profits with America's finest Baby Pig Pre-Starter? Yes, It Pays to Be a HUBBARD SUNSHINE DEALER.

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Soybean Prices Stabilized Near Support Level

URBANA, ILL. — Soybean prices seem to be on dead center. Only minor price changes are expected until some new market development appears.

That's the way the bean situation looks to Prof. L. H. Simerl, agricultural economist at the University of Illinois.

The 1957-58 supply appears to be around 40 million bushels more than will be used and exported, and by Dec. 15 that amount had been placed under price support, Prof. Simerl noted. Recent prices were probably high enough to prevent large additional amounts from being placed under loan. The total supply for this year, beginning in October, was 490 million bushels, compared with 443 million a year before. Exports for October-December were 40 million, compared with 37 million a year earlier. Crushings took 86 million, compared with 82 million bushels.

The loan rate this year is $2.09 bu., compared with $2.15 last year.

The Suez blockade gave bean prices a big boost late in 1956. There has been no corresponding development yet this season. A sharp recovery in business activity or an increase in export aids would give the market a lift, Prof. Simerl said.

Recent processing margins, he went on, were much smaller than a year earlier. The bean price was down nearly 30¢ bu., but the value of oil and meal in a bushel of beans was down more than 40¢.

Soybean products, Prof. Simerl pointed out, are cheap in comparison with competing commodities. A year ago soy oil was only ¼¢ below cottonseed oil. Recently soybean oil was 11½¢ lb., 4¢ below cottonseed oil. A year ago the base price of soybean meal was $49.50 ton, $3 below cottonseed meal. Recently bean meal was $43.50, or $7 below cottonseed meal. These current low prices give processors little incentive for bidding up bean prices. On the other hand, the availability of price support relieves farmers of the need to sell at possibly lower prices.

ADVERTISEMENT

Ohio firm has stationary and portable seed treaters

To offer its customers the best possible service, Middlebranch Farmers Exchange, Inc., Middlebranch, Ohio, operates two cleaning and treating plants.

Both plants treat seed by the popular Panogen Process, as this method has been found easier and more simple.

"We clean and treat a lot of seed for Certified seed growers," reports Guy A. Morrow, manager. "These growers are well pleased with Panogen."

Morrow is shown with his truck-mounted cleaning and treating plant which has been converted to Panogen Liquid Treatment by a Panogen Dust-Conversion Kit.

Florida Poultrymen Suffer Freeze Loss

TALLAHASSEE, FLA.—Florida poultrymen lost about half a million dollars as a result of December and January freezes, according to F. W. Risher, assistant commissioner of the state market bureau and a member of the Florida Egg Commission representing the Florida Agriculture Department.

Speaking recently at a meeting in Jacksonville, Mr. Risher said a survey made by the egg commission shows a 10% loss in production in the 30 or more days since the December freeze.

"Poultrymen lost about $500,000 because of a drop in production," he said. "The old hens just quit laying. It got cold, and they're not used to it."

He reported a 7% increase in egg production in Florida for 1957 as compared to the previous year and predicted that despite the recent loss of production from the freeze, the state should increase an additional 10% this year.

F. H. Blough W. A. Stohrer

Allied Mills Announces Production Promotions

CHICAGO—Two promotions in the production division of Allied Mills, Inc., Chicago, have been announced by T. L. Murphy, chairman of the board.

F. H. Blough, formerly plant manager at Omaha, has been transferred to Chicago as an assistant general production manager in charge of western plants, and W. A. Stohrer, who has been assistant general production manager for the last two years, has been placed in charge of eastern plants. Mr. Stohrer will also handle employee relations for all plants.

Mr. Blough started in the accounting department at Ft. Wayne, Ind., in 1928, and worked in accounting at the East St. Louis, Omaha, Buffalo and Peoria plants. He spent a year in the engineering department and then from 1946 to 1952 was office manager and insurance manager in the Chicago office. In 1952 he went to Omaha as plant manager.

Mr. Stohrer, a graduate of the University of Illinois, started with the company in the accounting department in Peoria in 1933. Later he spent some time at Memphis and went to Omaha as plant manager in 1948. He was transferred back to Peoria as plant manager in 1952, then promoted to assistant general production manager and was transferred to Chicago in 1956.

Succeeding Mr. Blough as plant manager at Omaha will be K. J. Keck, according to the company announcement.

ROBERT STUART WEDS

MINNEAPOLIS—Robert D. Stuart, president of Reliance Feed Co., was married to Norma Jean Pohl Jan. 25 at Lake Nokomis Lutheran church. The couple was feted at a reception at the home of H. M. Stuart following the ceremony.

Program Set for Montana Event

BOZEMAN, MONT.—Program plans have been announced for the annual Montana Nutrition Conference, to be held Feb. 10-11 at Montana State College.

Preceding the conference, the Montana Feed Manufacturers & Dealers Assn. will hold a dinner meeting Sunday evening, Feb. 9, at the Baxter Hotel.

Dr. O. O. Thomas of Montana State, conference chairman, reports that the conference will start with registration at 8 a.m. Feb. 10 and a movie, "Progress in Nutrition" from the Midwest Feed Manufacturers Assn., at 8:30. Other special features during the conference will include a social hour and banquet the evening of Feb. 10 at the Baxter Hotel, with Jerry Sotola of Armour & Co. speaking, and a showing of the American Feed Manufacturers Assn. film, "Old MacDonald," the morning of Feb. 11.

Nutrition speakers, including Montana State and guest speakers, and their topics are:

Robert Wetherell, feed control terminology; H. J. Hargrove, western Canadian livestock problems; Kenneth Goering and John Ismande, industrial utilization of barley; Carl F. Neumann, animal fats in the livestock industry; E. P. Smith, levels of grain feeding of dairy cattle; N. L. Jacobson, calf nutrition; Donald K. Scharff, cattle grub control; E. P. Orcutt, N. A. Jacobson and Karl Parker, extension range livestock nutrition school.

O. O. Thomas, Montana cattle nutrition experiments; Myron Carpenter, "Getting the Feed Bag Into the Feed Lots;" Jerry Sotola, "Research Will Point the Way;" George Davis, Montana poultry nutrition work; James McGinnis, enzyme supplementation and water treatment of barley.

Oilseed Meal Futures Prices Mixed

MEMPHIS—Oilseed meal futures were mixed Jan. 29 at the close on the Memphis Board of Trade, compared with Jan. 22.

Activity was limited during the period, as traders awaited new developments. Soybean oil meal dipped on Jan. 29 influenced by easiness in allied markets. Little change was noted in cottonseed oil meal prices.

Unrestricted soybean oil meal closed Jan. 29 25¢ a ton lower to 60¢ higher, Eastern Trunk Line soybean oil meal 50¢ lower to 45¢ higher, bulk solvent cottonseed oil meal unchanged to 25¢ higher, and sacked old process cottonseed oil meal unchanged.

Traded in the week were 4,200 tons of Eastern Trunk Line soybean oil meal and 1,800 tons of unrestricted soybean oil meal.

Detective to Address Cincinnati Feed Club

CINCINNATI—Unusual experiences in crime detection will be described by Norman J. Sloan, president, Cal Crim Detective Bureau, Inc., at a monthly dinner meeting of the Cincinnati Feed Club Feb. 10 in Schuller's Wigwam Restaurant. Mr. Sloan heads one of the oldest and largest private detective agencies in this country. The agency is headquartered here.

ADA MEMBER

Due to an unfortunate error, the name of the Grayson Alfalfa Dehydrating Mills of Sherman, Texas, was omitted from the list of members of the American Dehydrators Assn. which appears on page 5a of the alfalfa section. The Grayson firm has been a member for many years, and J. A. Alexander, an executive of the firm, is presently a director of the ADA. Chris Scheurer, another member of the firm, also has served as a director in the past.

Pellet Cooling Problems?

- Too many fines? . . .
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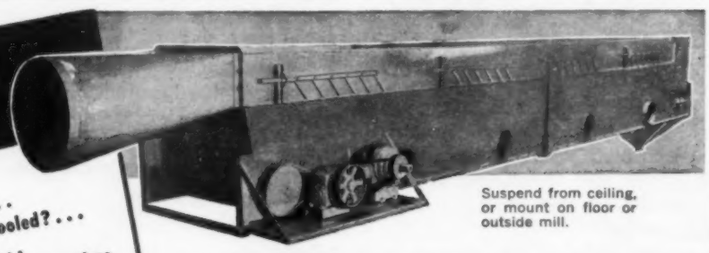
- Larger cubes inadequately cooled? . . .
- Uneven cooling of pellets? . . .
- No satisfactory control of retention time of pellets in cooler?



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Albert L. Johnson

Claude I. Carter

Claude Carter Named General Manager

OMAHA, NEB.—Claude I. Carter has been named general manager of all operations of Alabama Flour Mills, Decatur, Ala., according to an announcement by J. A. Mactier, president of Nebraska Consolidated Mills Co., Omaha, Alabama Mills' parent company. Mr. Carter has been a vice president of Nebraska Consolidated.

Mr. Carter succeeds Albert L. Johnson who has resigned as vice president and general manager. Mr. Johnson said he resigned "for the sole purpose of devoting all my time to my personal interests." Mr. Johnson will be a consultant to Nebraska Consolidated for several months, Mr. Mactier said.

Mr. Johnson went to Decatur in 1944 from Grand Island, Neb. Mr. Carter has been with Nebraska Consolidated since 1941. The formula feed department, which is today an important part of Nebraska's business, has been built under his leadership and direction, Mr. Mactier said. A most recent growth of the company's feed program is the completion of a 154-acre Red Hat feed research farm near Decatur and a new Red Hat feed mill at Tunnel Hill, Ga., Mr. Mactier pointed out.

Mr. Carter is a native of Weogufka, Ala. He is a graduate of the Alabama Polytechnic Institute, where he earned his B.S. degree in agricultural science. At Auburn he was selected a member of Gamma Sigma Delta, a national honor society of agriculture, and Alpha Zeta, a national honorary agricultural service fraternity. He is past president of the Decatur Lions Club, and a director of the Chamber of Commerce. He is also on the agricultural advisory committee of the American Feed Manufacturers Assn.

Mr. Johnson is a director of the Morgan County National Bank in Decatur. He and his associates are owners of the new Kroger store building in Decatur. He also said that he is "considerably behind in my hunting and fishing."

Elevator, Processing Superintendents Will Meet in Minneapolis

MINNEAPOLIS—The 29th annual convention of the Grain Elevator & Processing Superintendents is scheduled for the Pick-Nicollet Hotel in Minneapolis May 12-15.

Present plans call for a pre-convention executive meeting and business session on the afternoon of May 11. Other plans and speakers for the convention are now being arranged.

Reservations can be mailed directly to the hotel or to S. L. Champlin, Archer-Daniels-Midland Co., Box 2058, Commerce Station, Minneapolis 15, Minn.

Review Drug Feeding Tests At Nevada Feed Conference

By JERRY ROBINSON
University of Nevada

RENO, NEV. — "In a commercial feedlot trial involving almost 400 lambs, we got a 17% increase in average daily gain from the use of tranquilizers," Dr. Ralph P. Soule, Jr., told a fourth annual Nevada Feed Conference audience here this week.

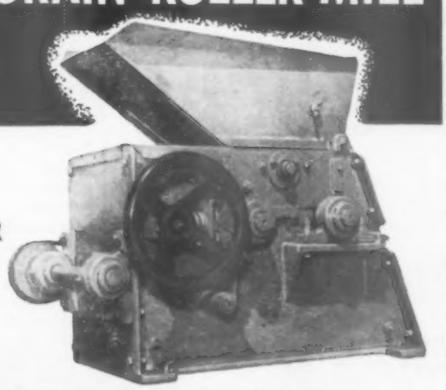
An average of the results of four steer trials showed a 13% improvement in daily gain and 8% increase in feed efficiency, according to Dr. Soule, who represented Chas. Pfizer & Co., Inc., at the meeting. Three lamb trials showed a 26% increase in daily gain and 12% improvement in feed efficiency. Lamb carcasses were noticeably improved in grade at levels of 1.2, 6, and 30 mg. per ton of feed, he said. There was no evidence of down-grading of beef carcasses at any level, and there seems to be a possible improvement at the 2.5 mg. per head per day level, he added.

Dr. A. L. Shor, of American Cyanamid Co.'s farm and home division, reported that experimental work showed the continuous feeding of 0.1 mg. of Aureomycin per pound of body weight did not produce assayable levels of the antibiotic in the blood or milk level of dairy cattle. He pointed out that the U.S. Food and Drug Administration has recently allowed a Cyanamid claim that the continuous feeding of Aureomycin at the 0.1 mg. level would aid in the prevention and control of bacterial diarrhea, foot rot, and respiratory diseases.

Experimental work shows, the

(Turn to NEVADA, page 70)

W-W GRAIN ROLLER MILL



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ACE BRAND ROLLED OATS (Steam processed)
KING BRAND ROLLED OATS (Steam processed)
WHOLE OAT GROATS
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BOLTED OAT FLOUR
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FALCON BRAND PULVERIZED WHITE OATS
STANDARD BRAND PULVERIZED WHITE OATS
DAIRY BRAND COARSE GROUND OATS
CRESCENT BRAND PULVERIZED OATS
CORN OATS PELLETS (Corn-Oats)
MIXERS' PULVERIZED OATS
MIXERS' COARSE GROUND WHITE OATS
MIXERS' PELLETED OATS
APEX BRAND CRIMPED WHITE OATS
OAT FEED
STEAM ROLLED WHOLE BARLEY
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1958 Virginia Feed-Nutrition Conference Set

RICHMOND, VA. — Feed industry problems and nutrition developments will be reviewed at the Virginia Feed-Nutrition Conference, Feb. 25-26, 1958, at the Roanoke Hotel, Roanoke, Va.

This will be the 11th annual nutrition conference. But for the first time the Virginia State Feed Association will hold its annual convention in conjunction with the conference and combine business topics with the latest in animal nutrition research.

The event features four separate interest sections and workshops. On Feb. 25, swine topics will be taken up in the morning and poultry subjects in the afternoon. February 26 will be devoted to dairy talks in the morning and a beef cattle and sheep discussion in the afternoon.

Informal workshop sessions will be held in the evening, Feb. 25, when speakers on the formal program will answer questions from the audience on matters not covered at the regular session.

Co-chairmen of the feed-nutrition conference committee, James E. Callaway, Roanoke, and Paul M. Reaves, Virginia Polytechnic Institute, Blacksburg, Va., say they expect a record turnout of feed manufacturers and dealers, salesmen, suppliers, nutritionists and producers of livestock and poultry.

One purpose in combining the state feed convention with the nutrition conference is to make the results of feeding research available to more people in the industry in such a way that it will get wider application in the field, according to S. E. Aylor, Lynchburg, Va., feed association president.

"Another reason for the change," he said, "is to attract a more diversified membership in the association, which formerly held its annual meeting in conjunction with the state poultry convention. Many livestock feeders, dealers and manufacturers have thought the association was interested only in problems relating to the manufacture, distribution and use of poultry feeds. This is not the case. Therefore an invitation has been extended to the feed-nutrition conference to meet with the feed association."

Mr. Aylor mentioned that information presented by nutrition experts from colleges and industry will be translated by experienced Virginia feed men into practical answers to common feeding problems.

Dawe's Will Sponsor Sales Clinic Feb. 9-12

CHICAGO — Program plans are complete for the forthcoming sales management clinic for feed manufacturers, to be held Feb. 9-12 at the Moraine Hotel in Highland Park, Ill., according to Frank McBride, director of advertising and sales promotion for Dawe's Laboratories, Inc., sponsors of the clinic.

Activities are to get under way the evening of Feb. 9, with a reception at the hotel. The program will start the next morning.

The program speakers will include Charles Alexander, director of sales of the Illinois Farm Supply Co.; Robert Emmons, sales manager, Wirthmore Feeds, Inc.; Simon Heemstra, director of advertising and promotion, McMillen Feed Mills; Dr. Robert English, director of education, American Institute of Baking; John H. Hembree, vice president, Union Planters National Bank, Memphis; Frank P. Berry, director of advertising and sales promotion, Nutrena Mills, Inc.; Robert Waite, vice president, Dannen Mills, Inc.; Ralph Everett, sales consultant, Buffalo, N.Y.; Dr. Morris Erdheim, director of technical service for Dawe's, and Mr. McBride.

Charles Pat Magee

Bache & Co. Opens Feed Brokerage Unit

CHICAGO—Bache & Co., internationally known brokerage firm, announces the opening of a feed brokerage department. The division will offer a service combining cash and futures trading for feed ingredients on a world-wide basis.

Heading the department is Charles Pat Magee, for 17 years with Wilbur-Ellis, and widely acquainted in feed circles. He is 47 years old, married, and lives in Chicago.

Mr. Magee said that Bache is ideally suited to correlate cash and futures trading in vegetable and animal proteins for the feed industry because of its membership in all important commodity exchanges and experience in commodities trading. He also observed that the company's connections in the Orient, Middle East and Europe enable it to offer service on a world-wide basis.

FEED MAN DIES

MILFORD, DEL.—Edward L. Williams, Sr., 77, retired operator of a feed firm here, died recently. Surviving are his widow, two sons and other relatives. Until a year ago he was associated with one of the sons in the feed business.

Merck & Co. Introduces New Drug to Combat Coccidiosis Disease

RAHWAY, N.J.—A new drug for use against coccidiosis disease has been discovered by scientists at Merck & Co. and is being marketed in a premix for use by feed manufacturers.

Its name, "GlyCamide," is derived from the chemical name of the drug, glycarbylamide.

The company says GlyCamide has been tested under various conditions on almost 2 million broilers and that during the tests there were no losses from coccidiosis, and excellent weight gains were obtained.

It further stated that even when excessive doses of the drug were fed during the tests, there were no side effects on appetite, appearance, egg production, shell color or yolk quality. "Moreover, when the birds were given 10 times the use level, there was no adverse effect on hatchability and fertility," the company pointed out, adding that "it has also been found to be well tolerated by dogs, sheep, cattle and swine, in the event of accidental consumption by these animals."

Merck is presently limiting recommendation of the chemical to broilers and replacement chicks grown for laying and breeding flocks.

Glidden Co. Names Agent for Feed Trade

HAMMOND, IND. — Appointment of the Gladwin A. Read Co., Evanston, Ill., as exclusive sales agent to the feed trade in the central west for The Glidden Co., Hammond, Ind., has been announced by E. P. Palmer, manager.

The Glidden Co., chemicals-pigments-metals division, manufactures black cupric oxide, a basic ingredient used by salt companies and mineral manufacturers for modern livestock and poultry feeds. The same copper compound is also used by the textile industry for mercerizing cellulose and artificial silk.

The Gladwin A. Read Co. specializes in sales and service on allied micro-nutrients, including feed grade iron, iodine, bentonite, and zinc, as a manufacturers' representative.

Farm Economist Reviews USDA Cattle Report

URBANA, ILL. — An insight into some of the reasons behind the figures of the Jan. 1 cattle feeding report by the U.S. Department of Agriculture have been given by L. H. Simerl, University of Illinois farm economist.

The small reduction in total number of cattle on feed reflects the smaller calf crops of the past two years, he points out. Ranchers seem to have held back cows, rather than young stock for restocking their pastures. Also, the cattle this year were shipped into the Corn Belt later in the fall than they were the year before. They therefore had been on feed a shorter period and weighed a little less than those in feedlots last year.

Twenty-four percent more stocker and feeder cattle were shipped into nine Corn Belt states in the October-December quarter than the year before, and total inshipments for the July-December half year were 11% above the year before, the economist observes. Thus, it appears that more cattle were being roughed along this year and are not yet on substantial grain feed.

Recent cattle prices, up 15 to 40% from a year ago, have been sustained largely by a shortage of slaughter cows and other cattle that produce cheap beef, he continues. The shortage of these grades of cattle may continue until next fall, but the supply of fed cattle promises to increase markedly during the next four or five months.

The biggest surprises in the USDA report (Feedstuffs, Jan. 18) were that farmers in the Corn Belt were feeding 1% more cattle, while the numbers on feed in the West were estimated at 13% fewer than a year ago. Kansas jumped 27% in numbers on feed, due to the bumper crop of sorghum grain and lush wheat pastures. Biggest slash was in California, where numbers were down 21%. Illinois showed the next largest cut, with 6% fewer cattle on feed than a year ago.

Animal Industry Conference Expected To Attract Over 200

PORTLAND, ORE.—More than 200 persons are expected to attend the 16th annual Animal Industry Conference co-sponsored by the Oregon Feed & Seed Dealers Assn. and Oregon State College, Feb. 6-7, at Corvallis, Ore.

Three out-of-state speakers will address the two-day meeting, which will deal with the latest developments in animal nutrition. They are Dr. F. H. Kratzer, department of poultry husbandry, University of California; Dr. Wise E. Burroughs, department of animal husbandry, Iowa State College, and Dr. A. O. Shaw, department of dairy science, Washington State College.

Additional speakers selected from the Oregon State College school of agriculture include V. H. Cheldelin, J. R. Haag, George Arscott, D. C. Church anld D. C. England.

Major attraction of the conference will be a panel discussion the afternoon of Feb. 7 which will be moderated by William Eggiman, Dairy Cooperative Assn., Portland, and which will feature the out-of-state speakers as well as several Oregon State staff men.

The annual banquet is scheduled for the evening of Feb. 6 at the Benton Hotel. Tommy Heath, general manager, Portland baseball club, will be the featured speaker.

Conference chairman is Fred West, Van Waters and Rogers, Inc., Portland.

Feedstuffs: Average Prices and Index Numbers, With Comparisons

Compiled by U.S. Department of Agriculture—Base Period 1947-49=100
(All prices of feeds and grains in dollars per ton)

	5-Year average 1951-55	Jan. 21, 1958	Jan. 28, 1958	Change from previous week	Per cent Jan. 28 is of 5-year average
OILSEED MEALS—					
Prices at principal markets:					
Soybean meal	85.30	61.80	61.50	— .30	72
Cottonseed meal	74.25	61.50	61.35	— .15	83
Linseed meal	73.35	57.75	58.85	+1.10	80
Copra cake or meal	73.00	54.50	54.50	..	75
Peanut meal	75.15	52.50	53.50	+1.00	71
Index of weighted prices	99.9	75.2	75.0	—0.2	..
ANIMAL PROTEIN FEEDS:					
Prices at principal markets:					
Meat meal	94.60	80.60	82.05	+1.45	87
Tankage	96.35	86.65	88.10	+1.45	91
Fish meal	139.40	130.40	129.90	— .50	93
Index of weighted prices	88.1	78.0	78.8	+0.8	..
GRAIN HIGH-PROTEIN FEEDS:					
Prices at principal markets:					
Gluten feed and meal	63.05	51.05	51.65	+ .60	82
Distillers dried grains	68.80	58.10	58.50	+ .40	85
Brewers dried grains	56.15	53.00	53.25	+ .25	95
Index of weighted prices	89.3	74.0	74.8	+0.8	..
WHEAT MILLFEEDS:					
Prices at principal markets:					
Bran	53.40	41.90	42.80	+ .90	80
Middlings and shorts	56.45	42.35	43.10	+ .75	76
Index of weighted prices	90.4	69.4	70.8	+1.4	..
OTHER MILLFEEDS:					
Prices at principal markets:					
Hominy feed	61.15	46.45	45.30	—1.15	74
Rice bran	39.30	33.00	32.50	— .50	83
Index of weighted prices	84.5	65.1	63.6	—1.5	..
ALFALFA MEAL:					
Prices at principal markets	59.75	52.00	51.70	— .30	87
Index of weighted prices	105.8	92.0	91.5	—0.5	..
MOLASSES FEEDING:					
Prices at principal markets	27.85	27.71	27.71	..	99
Index of weighted prices	82.9	82.5	82.5	..	..
ALL FEEDSTUFFS:					
Index of weighted prices	94.0	74.4	74.7	+0.3	..
FEED GRAINS:					
Prices at principal markets:					
Corn	55.00	36.80	37.10	+ .30	67
Oats	51.90	42.10	42.20	+ .10	81
Barley	52.50	41.50	41.80	+ .30	80
Grain sorghums	53.60	40.60	40.60	..	76
Index of weighted prices	87.7	61.1	61.5	+0.4	..

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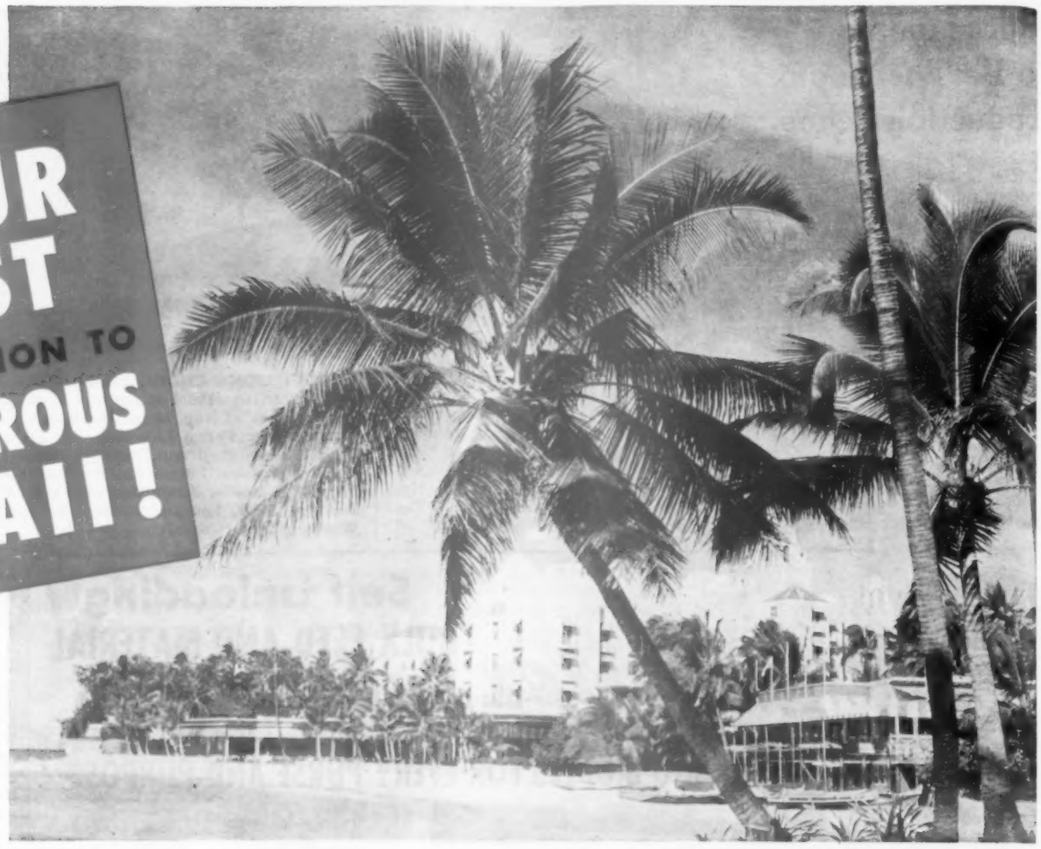

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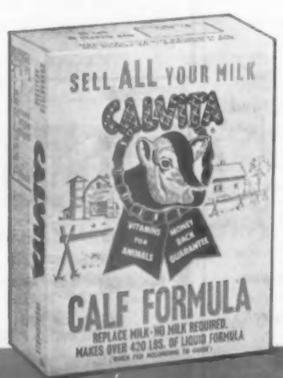
Winners will fly to and from Honolulu in luxury Northwest Airlines Stratocruisers.



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Bulk Handling To Be Theme of Production School

KANSAS CITY — "Bulk Handling of Finished Feeds" will be the main theme of the 1958 Production School of the Midwest Feed Manufacturers Assn.

This was decided at a recent meeting of the committee in Kansas City. The group set the week of Nov. 10 as the time for the annual school and approved the American Royal Building in Kansas City as the location.

A program was set up for a three-day school. It will feature on the first day a presentation of bulk handling systems, including in-plant operations and distribution. Basic principles of materials handling will be emphasized, as well as costs.

The second day will also include a total group session on bulk handling, with some specialized sessions on specific points of bulk handling.

The third day will be devoted to small group, specialized sessions on subjects other than bulk handling. These will include (1) liquids, (2) remodeling of a mill, (3) pelleting, (4) mixing micro-ingredients and (5) maintenance and cost control.

The possibility of holding a special demonstration on custom milling will be investigated.

Sub-committees were appointed from the committee members. The committee consists of J. D. (Don) Johnson, General Mills, Inc., Minneapolis, chairman; Dr. V. John Brensike, U.S. Department of Agriculture, Washington; W. B. Briggs, Spartan Grain & Mill Co., Spartanburg, S.C.; Eric Carlson, Ralston Purina Co., St. Louis; Calvin Hunseker, the O. A. Cooper Co., Beatrice, Neb., and Forest Lipscomb, Jr., Lipscomb Grain & Seed Co., Springfield, Mo. Trade press representatives at the meeting were Jerry Karstens, Feed Age, and Richard Miller, Feeds Illustrated.

Named on the research and program sub-committee were Mr. Carlson and Dr. Brensike. Mr. Hunseker and Mr. Lipscomb will head the specialized session sub-committee, along with each topic chairman. Mr. Briggs will head the equipment sub-committee along with a Kansas City contact to be named later. John Branch, Nutrena Mills, Kansas City, will serve in a counseling capacity with the equipment group.

A publicity advisory committee will include Mr. Miller, Mr. Karstens and Roger Berglund, Feedstuffs.

The next meeting of the committee will be March 4-5 at the Phillips Hotel in Kansas City.

Meanwhile, a survey will be conducted to determine what existing research may already be available on bulk handling. It was the opinion of the committee that bulk handling should be a continuing study, including future production schools.

Work will be done to determine what research feed manufacturers themselves may have conducted on the subject. Possibilities of using research done by colleges, publications and others also will be investigated.

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Self Unloading BULK FEED AND MATERIAL BODIES AND TRAILERS

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TROUBLE-FREE CONVEYORS are 36" wide and utilize belt-over-chain principle for positive drive with no slipping. Variable speed.

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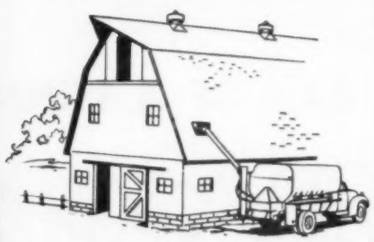

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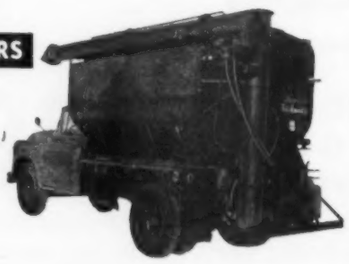

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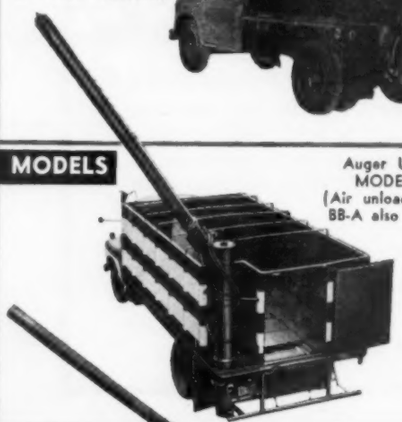

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KEM MILLING CO. Kemco MEAT MEAL ALWAYS UNIFORM • ALWAYS DEPENDABLE

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this trademark identifies Kemco MEAT MEAL... produced to your order in this all-new, automatic push-button protein blending plant

THE NEW plant of Kem Milling Co. shown at right was built to order from the ground up and incorporates the latest equipment. The result: an entirely automatic, push-button blending plant. This insures you of always uniform quality . . . always dependable service — whatever your needs.

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When you order Kemco Meat Meal, you specify the percent of protein you want. Modern, high-capacity equipment—prompt service.

We're set up to deliver your Kemco Meat Meal in bags or in bulk. Plant is conveniently accessible for your trucks . . . or you can specify truck or rail shipment.

Our "shakedown cruise" is over and we're now producing Kemco Meat Meal in quantity.

We're looking forward to serving you!

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always uniform... always dependable

Kem Milling Co.
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Bulk Handling To Be Theme of Production School

KANSAS CITY — "Bulk Handling of Finished Feeds" will be the main theme of the 1958 Production School of the Midwest Feed Manufacturers Assn.

This was decided at a recent meeting of the committee in Kansas City. The group set the week of Nov. 10 as the time for the annual school and approved the American Royal Building in Kansas City as the location.

A program was set up for a three-day school. It will feature on the first day a presentation of bulk handling systems, including in-plant operations and distribution. Basic principles of materials handling will be emphasized, as well as costs.

The second day will also include a total group session on bulk handling, with some specialized sessions on specific points of bulk handling.

The third day will be devoted to small group, specialized sessions on subjects other than bulk handling. These will include (1) liquids, (2) remodeling of a mill, (3) pelleting, (4) mixing micro-ingredients and (5) maintenance and cost control.

The possibility of holding a special demonstration on custom milling will be investigated.

Sub-committees were appointed from the committee members. The committee consists of J. D. (Don) Johnson, General Mills, Inc., Minneapolis, chairman; Dr. V. John Brensike, U.S. Department of Agriculture, Washington; W. B. Briggs, Spartan Grain & Mill Co., Spartanburg, S.C.; Eric Carlson, Ralston Purina Co., St. Louis; Calvin Hunseker, the O. A. Cooper Co., Beatrice, Neb., and Forest Lipscomb, Jr., Lipscomb Grain & Seed Co., Springfield, Mo. Trade press representatives at the meeting were Jerry Karstens, Feed Age, and Richard Miller, Feeds Illustrated.

Named on the research and program sub-committee were Mr. Carlson and Dr. Brensike. Mr. Hunseker and Mr. Lipscomb will head the specialized session sub-committee, along with each topic chairman. Mr. Briggs will head the equipment sub-committee along with a Kansas City contact to be named later. John Branch, Nutrena Mills, Kansas City, will serve in a counseling capacity with the equipment group.

A publicity advisory committee will include Mr. Miller, Mr. Karstens and Roger Berglund, Feedstuffs.

The next meeting of the committee will be March 4-5 at the Phillips Hotel in Kansas City.

Meanwhile, a survey will be conducted to determine what existing research may already be available on bulk handling. It was the opinion of the committee that bulk handling should be a continuing study, including future production schools.

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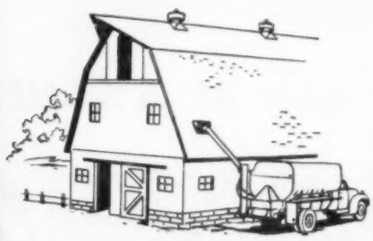

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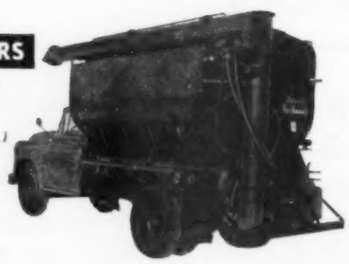

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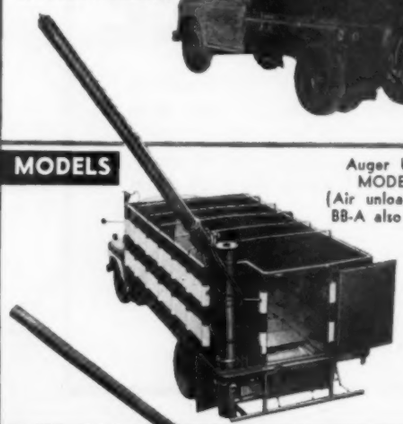

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When you order Kemco Meat Meal, you specify the percent of protein you want. Modern, high-capacity equipment—prompt service.

We're set up to deliver your Kemco Meat Meal in bags or in bulk. Plant is conveniently accessible for your trucks . . . or you can specify truck or rail shipment.

Our "shakedown cruise" is over and we're now producing Kemco Meat Meal in quantity.

We're looking forward to serving you!

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No antibiotic now on the can beat the performance in building profits,

Broiler profits are protected . . . *with* BACIFERM®

Layers produce full time . . . *with* BACIFERM®

the feed that contains **BACIFERM®**

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Poults speed to market . . . *with* BACIFERM®

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Baciferm costs you $3 to $6 *less* per ton than the tetracyclines. That means that on the basis of producing 100 tons of high-level feed per month, you save $300 to $600 per month. Or from $3600 to $7200 per year! That's the difference – in Baciferm. And that's the only difference! Gram for gram, the bacitracin in Baciferm equals the effectiveness of any other antibiotic now used in feeds.

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FOR HIGH-LEVEL FEEDING AT LOW-LEVEL COST

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CSC

A Disease of Swine and Cattle Caused by Eating Moldy Corn—Experimental Production with Pure Cultures of Molds

● J. E. Burnside, W. L. Sippel, J. Forgacs, W. T. Carll, M. B. Atwood and E. R. Doll, Animal Disease Department, Georgia Coastal Plain Experiment Station, Tifton, Ga.; American Journal of Veterinary Research, Vol. 18, No. 69, page 817.

In this paper these researchers report the results of the experimental production of a disease in livestock with pure cultures of molds from moldy corn. Sippel, Burnside and Atwood, in an earlier paper, described the occurrence of poisoning of swine and cattle, caused by eating moldy corn, which occurred in the fall of 1952.

Thirteen cultures of mold were isolated from samples of corn collected from various areas where the toxicity had occurred in the fall of 1952. Of the 13 cultures isolated by the described procedure, two were proven to be toxic. This paper presents the results from feeding swine pure cultures of these molds grown on sterile, whole grain. Experimental poisoning was also produced in mice, a goat and four horses. The toxicity of these two mold cultures was further confirmed by tests on embryonating eggs and antibacterial tests with culture filtrates on selected microorganisms.

The gross histological lesions produced by the toxic molds in the various species are described and discussed.

COMMENTS:

Molds have long been suspected of being the cause of various troubles in livestock. The cases of moldy corn poisoning reported in 1952 involved about 1,000 hogs. During a period from August to November in 1953, this Georgia laboratory diagnosed moldy corn poisoning in cases where 533 hogs were involved. In both years, there was a mortality of 22% among the infected swine in the area. It should be pointed out, however, that only a small fraction of the diseased animals in the region were presented to this particular laboratory for diagnosis.

One point which should be emphasized in any discussion of this paper is that, of the 13 cultures of mold isolated from the suspected corn, only two were found to be toxic. In addition, this toxicity was produced in animals only as a result of the administration of massive doses under laboratory conditions. This would indicate that finding large numbers of molds in a feed or feed ingredient does not necessarily mean that toxic effects would be produced by the use of such a feed or feed ingredient. Even if the mold or molds recovered from such a sample were known to be toxic, they would have to be present in sufficient quantity for the feed to prove toxic to animals.

In view of the extreme toxicity of the two mold cultures described in this paper, as well as an increasing amount of information accumulated by various research groups along these same lines, it would be well to continue an interest in studies dealing with toxic molds. It would also be well to initiate studies to determine how widely prevalent these molds are in other corn-producing areas.

Soft Corn

Soft corn or immature corn can be a serious problem in the principal corn-producing areas where a late spring delays planting or when adverse weather conditions during the growing season prevent proper maturing and drying of the crop. Planting early maturing seed is usually good insurance against soft corn.

The extent of the problem may

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Dried, 100% Pure, Made of
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PROMPT & DEFERRED SHIPMENTS
Imported Full Meal
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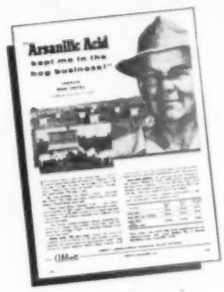

The safe arsonic additive that delivers an important extra in your poultry and swine feeds . . .

Arsanilic Acid makes
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"Arsanilic Acid kept me in the Hog Business!"
reports Dan Totel, LaSalle County, Illinois

"I was about ready to give up raising hogs . . . until I started using hog feeds fortified with Arsanilic Acid," continues Mr. Totel. "This year, I've got the best crop in 20 years . . . "

That's why many of Dan Totel's neighbors are now buying feeds fortified with Arsanilic Acid!

Arsanilic Acid research has firmly established it as a safe, effective growth stimulant for all types of hog feeds—including protein supplements such as used by Mr. Totel.

"I'm sold on Arsanilic Acid for Laying Feeds!"
reports James Duduit, DeKalb County, Illinois

"I wouldn't be without Arsanilic Acid in my Laying Feeds," declares Mr. Duduit. "For a cost of only 2c per hen for a full year of protection, no poultryman can afford to be without it! That's why more and more of my neighbors are also asking for Laying Feeds fortified with Arsanilic Acid."

Arsanilic Acid boosts egg profits three ways. It combats dangerous bacteria in the vital intestinal tract where many costly diseases get their start. Hens live longer . . . lay more eggs . . . on less feed!

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Only one extra pound of gain per 100 broilers pays for all the Arsanilic Acid needed to grow them to market weight! Effective alone or in combination with other growth stimulants, Arsanilic Acid can produce faster gains yet cut feed costs as much as 10%. This superior growth stimulant eliminates concern about safety of an arsonic acid addition to broiler feeds.

Good reasons why Arsanilic Acid is included in broiler rations recommended by poultry nutritionists at the University of Maryland and the University of Georgia—and also in the Animal Nutrition Research Council reference chick and broiler ration.

801492

range from ears that are substantially mature, but containing excessive amounts of water, to corn that is actually immature and watery. In either instance, the excessive levels of water in the kernels and cobs are the primary cause of loss and mold damage during storage. Regardless of the cause of the high moisture content, varying degrees of spoilage must be expected if the corn is stored in the ordinary way and if the kernels contain more than 20% moisture. The higher the moisture content, the greater will be the difficulty experienced in storage of such corn.

Drying corn, either by adequate crib aeration or by mechanical means with either heated or unheated air, is the most effective means of preventing loss and damage in storage. Soft corn may also be handled by feeding directly to livestock without prolonged storage or put up as ensilage. Immature corn can also be cared for safely by cutting the corn and putting it up in small, well-made shocks which will permit the ears to properly dry during the winter.

Immature corn has about the same feeding value per pound of dry matter as mature corn. As long as it remains sound, it can be fed safely to almost all kinds of livestock. However, the feeding of soft or immature corn must be started gradually and the quantity carefully and slowly increased to full feed. Extreme care should be used in feeding soft corn to poultry. Moldy corn should not be fed to horses and sheep, especially lambs, since these species are quite susceptible to injury from such feed. Cattle are apparently not subject to this danger from moldy corn so it can be fed to them safely. Moldy corn can also be fed to hogs as long as they will eat it.

Hogging down soft corn is considered to be a safe and satisfactory practice. However, there is a tendency for the hogs to waste a greater amount of feed when the corn is fed in this way. This can be largely overcome by using temporary fences to make the hogs clean up successive strips or areas of the field.

Ensiling is another good means of saving soft corn. If permanent silo capacity is not available, temporary silos can be used. The entire corn plant can be safely made into silage while immature or very immature. Because of its high water content and lower feeding value, silage made from such corn is not as valuable as silage made from more mature corn. However, it does make a satisfactory feed for cattle, and this is one of the best uses that can be made of it. While good silage can be made from corn that has been frozen, it should be put into the silo as soon as possible after the freeze occurs.

In some instances it may be most practical to make snapped or husked ear corn into silage from corn that is too soft for safe storage in cribs. The same principles apply as in making silage from the whole plant. The ears may be chopped in an ensilage cutter, and care must be taken to pack the chopped material in the silo to effectively exclude the air. It is usually necessary to add water to bring the moisture content of such silage up to the desired level of about 55%.

Since ear-corn silage is a more concentrated feed than whole-plant silage, the quantity fed per animal per day will be smaller. Consequently, a larger number of animals should be fed from a silo of given diameter to avoid surface spoilage of the corn in the silo. Ear-corn silage is heavier than silage made from the whole plant.

Information has also been obtained that shows the use of salt to be beneficial in reducing fermentation and mold growth in soft corn in storage. However, under severe conditions, the preservative effect of the salt is not sufficient to prevent spoilage. It was also found that the necessary larger proportions of salt would cause difficulties in feeding the corn. No other known chemicals or chemical preparations have been found to be satisfactory in the preservation of high-moisture corn.

In so far as it is practicable, prompt feeding to livestock is the best way to dispose of soft or immature corn. Protein, vitamin and mineral supplements should be provided in adequate and properly balanced amounts as when sound, mature corn or other grains are being fed. It should also be kept in mind that animals fed on soft corn will not gain as rapidly or perform as efficiently as those fed mature corn. This is due to the reduced daily intake of dry matter, resulting from the higher moisture level in the immature corn. Consequently, the level of total feed intake must be higher on the soft-corn ration to provide the required amount of the nutrients which can be secured from the corn.

BUYS FEED FIRM

CEDAR FALLS, IOWA—B. L. Olson, owner of B. L. Olson Coal Co. here, has purchased the Hurlburt Coal & Feed Co., Lee Hurlburt has announced. Mr. Olson will continue the business under the same name and also will continue his present business.

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Customers Like Seed Treatment, says North Dakota Elevator Manager

"Since we installed our Panogen liquid seed treater seven years ago, our customers have often expressed their satisfaction," says Ted Strom, manager of the Farmers Equity Exchange at New England, North Dakota.

"They tell us that seed treated by the modern Panogen Process comes up quicker and gives them heavier yields."

Strom, shown above with his automatic Panogen seed treater, has managed the 140,000 bushel elevator for the past nine years.

Grain Warehousemen Said to Be Facing "Unfair" Tax Problem

DES MOINES—A number of Iowa grain warehousemen are facing a tax problem because the Bureau of Internal Revenue apparently is contradicting previous U.S. Department of Agriculture statements, according to Robert Skinner, executive secretary of the Western Grain and Feed Assn.

Mr. Skinner pointed out that a few years ago the USDA told warehousemen that they could take a five-year amortization on new storage facilities if they would build them. This favorable tax plan was offered to encourage building, and thus relieve a severe shortage of grain storage facilities.

He went on to say that warehousemen, relying on the advice from the USDA, built flat and round bins, quonsets and annexes, with tax schedules set up on a five-year plan.

"Then," Mr. Skinner said, "early in 1957 when the internal revenue department started checking these facilities and found that many of them were not, what they termed, 'permanently equipped for receiving, elevating, conditioning and loading out of grain' as stated in (a) Section 169 (d) of the Internal Revenue Code of 1954 (relating to definition of grain storage facilities). The revenue department does not consider flat and round structures eligible for the fast write-off unless they are attached to the main elevator or have their own loading and unloading facilities."

The government, he said, does not consider augers, portable elevators and certain other equipment normally used around an elevator as permanent equipment.

Mr. Skinner stated: "Unless this problem can be resolved, many warehousemen will suffer severe financial losses and even may be forced into bankruptcy because of their inability to meet financial commitments that were set up under a five-year amortization schedule."

Mr. Skinner mentioned that one test case is being made in Iowa, and that other warehousemen are paying the additional tax and filing for a refund. "Others haven't been contacted yet but are expected to be contacted by the internal revenue department anytime," he said.

"It seems to me that we must either try to get the present law interpreted as it was originally intended or get it amended," Mr. Skinner commented.

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Announces Plans for Mill in Puerto Rico

OMAHA—A feed mill will be part of a new milling operation in Puerto Rico which is planned by Nebraska Consolidated Mills Co., Omaha.

Plans for the plant, which will produce flour, corn meal and feed, were announced recently by J. Allen Mactier, president of Nebraska Consolidated. The firm has formed a wholly owned subsidiary, Caribe Mills, Inc., which will build and operate the new plant.

The mill, to cost in excess of $3 million, will operate on a nearly tax-free basis for 10 years. The construction site is at Catano, on the west side of San Juan Harbor. All grain will reach the plant by water.

The elevator will have a storage capacity of 500,000 bu. Daily production capacity will be 4,000 cwt. of flour, 1,000 cwt. of corn meal and 500 tons of feed. The island has large dairy herds and a growing poultry and egg industry, Mr. Mactier said.

Jones-Hettelsater Construction Co., Kansas City, is the architect-engineer. Sprout, Waldron & Co., Muncy, Pa., will produce and erect the feed mill equipment. Flour milling equipment is coming from Henry Simon, Ltd., of England, and the marine leg will be provided by Buhler Bros. of Switzerland.

Owen W. Cotton, vice president of Nebraska Consolidated, will be vice president and general manager of Caribe.

Almost all grain for the mill will come from the U.S.

The Government Development Bank for Puerto Rico is making a long term loan of $1.5 million to Caribe.

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ANNUAL VISITOR—Dressed up in Santa Claus suit in this picture is John Zumstein, Redmond, Ore., former Salem, Ore., feed store operator who gave up the feed store to run a reindeer ranch. He has feeding problems like any other rancher, but has found that a good reindeer ration contains beet pulp, oatmeal, lime, breakfast cereal and a "secret formula" devised by a Redmond veterinarian. The reindeer roam the ranch until late fall when they and Mr. Zumstein go to work in the trappings pictured above to delight kids over the country.

TO DELIGHT CHILDREN

Former Feed Man Provides Formula for Santa's Reindeer

By Ralph Friedman

REDMOND, ORE. — Thanks to a former feed store operator in Oregon, a "glaring oversight" in feed manufacture has been corrected. He has a formula for reindeer.

It seems that while every other kind of livestock has carefully researched feed formulas, Santa Claus had to let his reindeer shift for themselves. That is, until former feed store operator John Zumstein and his wife, Mary, gave up their Salem, Ore., feed store to become herdsmen for Santa.

The couple maintains a herd of 40 reindeer on the high plains of central Oregon. It is the largest herd of its kind in the U.S. and the only one in the West. The reindeer are used in Santa Claus parades and on TV each year.

The Zumsteins operated their feed store more than 20 years before they started their reindeer ranch—"to find something that would delight children," Mrs. Zumstein said. They have no children of their own.

So they retired, scoured the state and bought a piece of semi-sageland near Redmond. But they found early that working for Santa Claus isn't all fun. First they had to get the animals, then they had to keep them alive and then they had to learn how to feed Donder, Blitzen, Cupid, Vixen et al to keep the animals in shape for the annual December pull.

After long correspondence with stock and wildlife people in Alaska, Mr. Zumstein flew to Nome, where he hopped a bush plane to Golovin, on the north shore of Norton Sound. He bought 10 reindeer, flew them back to Oregon, and set out to domesticate the Arctic beasts. The domestication process almost cost him his shirt. Five of his beauties died the first year and two died later, leaving only three of the 10.

"I had to learn to tame the deer without resorting to force or punishment," he recalls. "Wild reindeer which are roped and bound tight will die of broken hearts or, given the opportunity, will commit suicide. If the reindeer are crowded they can jump a seven-foot fence. They need lots of room."

Reindeer Feeding

John also learned rapidly something about reindeer eating habits and nourishment. The lichen diet of the reindeer's native tundra would emaciate our cows. Conversely, Oregon alfalfa is too rich for the reindeer, so the Arctic animals are fed beet pulp, oatmeal, lime, breakfast cereal (as dessert), and a "secret formula," devised by a Redmond veterinarian, Jack Davenport, who acts as Mr. Zumstein's assistant. The diet is carefully controlled. The investment is too large to be casual about such all-important items as feeding, Mr. Zumstein said.

Mr. Zumstein also found—almost too late—that the powerful animals are susceptible to "civilized" diseases.

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SANTA'S STARTER RATION—Mrs. John Zumstein, who works with her husband in maintaining the nation's biggest reindeer ranch, is shown here getting a few reindeer fawns on feed. The ranch is the only one in the country with fawns. Before going to work for Santa, the Zumsteins had operated a feed store in Salem, Ore., more than 20 years.

When he and Dr. Davenport returned to Golovin for more shipments, the veterinarian vaccinated each deer chosen and gave each a shot of streptomycin.

After the first shipment, the deer were brought to Oregon in slow stages. They were kept at Golovin on their native tundras for a few days, just to get used to being around Mr. Zumstein. Then they were flown in bush planes to Nome and put in a quonset hut for a month. Finally, they were placed in plywood crates and flown to Portland, and from there were trucked to the ranch.

Training the deer to pull sleighs is an arduous process, requiring infinite tact and patience. Mr. Zumstein explained the method:

"After the deer get sort of acclimated you start to break them in as sleigh animals by first getting them used to the halter. That takes a little time, getting them to know what the halter means. But I worked it out by tying them to loose fence posts and letting them drag the posts around while they fight the halter.

"When they get on to the halter, you harness them behind a tractor and lead them slowly around the pasture. They learn to follow the rope that way. Then they're harnessed to the tongue of the sled.

"We attach the sled to the tractor or pickup truck, so the sled has an anchor, which keeps the deer from thundering off with the sled the first few times it's harnessed to it."

Stress Problems

Civilization can make raving maniacs or cowardly neurotics out of animals bred in the clear, sane atmosphere of the wilds, Mr. Zumstein said. To get the reindeer accustomed to Christmas carols blared from loud speakers, Mr. Zumstein feeds the deer a variety of music—hillbilly, martial, hot, and brassy. When they can take Elvis Presley and Spike Jones they are ready for any confusion and cacophony, he said.

For nine months of the year the reindeer roam the Zumstein ranch, in the shadow of the white-peaked Cascade range. The other three months they pay for the ranch operation—as parade and stock animals and "acting" in TV shows and movies.

In spring the deer shed, and have a rough appearance most of the summer. In August their coats start to grow again, and by the time the first snow flies they are prepared to take 60° below zero in stride.

When Dasher, Dancer & Co. travel throughout the North and West they move in open trucks. But when they go down to Hollywood they are taken in a big refrigerated truck. The Klieg lights of TV are as hot as the boiling sun to the reindeer, and every half hour they are led back to their refrigerated trailer, where they cool off for 15 minutes.

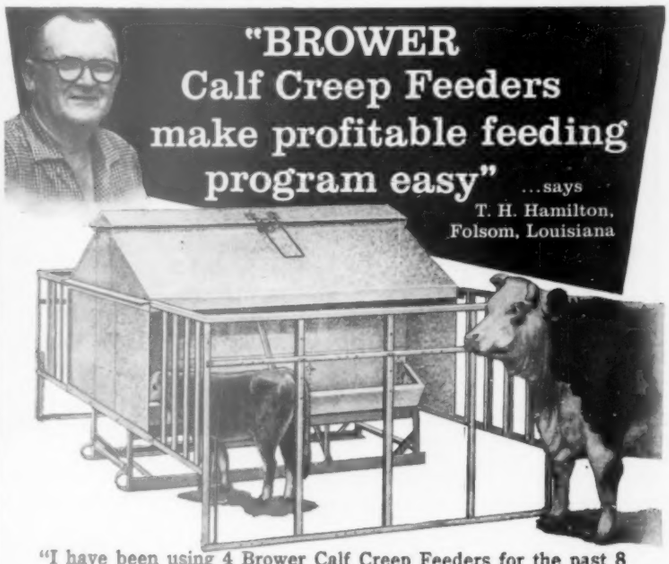
The favorite of the humans is Rudolph, the red-nosed one—but the other reindeer are not impressed. They know that Rudolph is a she and that her nose isn't red. It just gets painted that color at the start of every touring season.

Sextuplet Lambs Born

CANBY, ORE.—A ewe gave birth to six lambs recently at the Russell Rutherford farm in the Milk Creek district.

Chances of this happening are one in 10 million, according to Dr. B. W. Fox, Oregon State College associate professor of animal husbandry.

The six lambs lived for one day, but two later died. The four survivors are in good condition.



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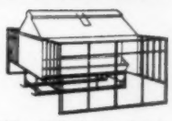

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Hog farmers are fine prospects for Brower's Pig Creep Feeder — in earlier gains, earlier weaning and healthier pigs. Keeps sow out of pig's feed — gives pigs a head start at weaning. Feeder is weatherproof, sanitary, easily moved. Sturdily built — body of heavy, rust-resisting Armco Zincgrip. Holds 8 bu. feed; capacity 75 pigs.

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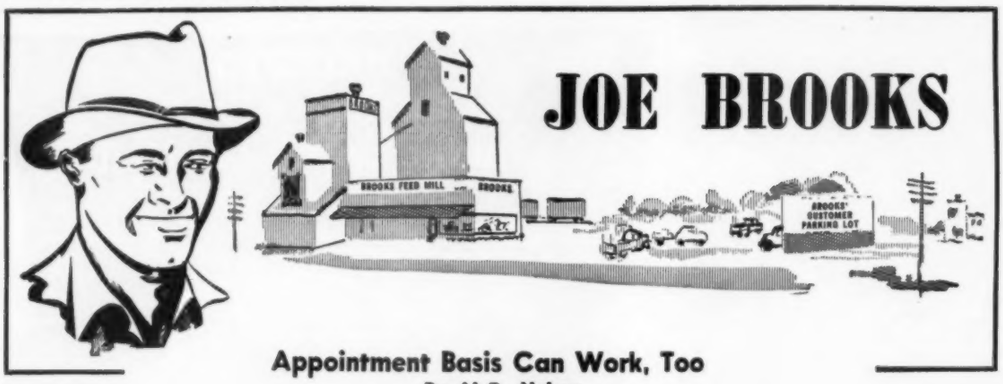

Appointment Basis Can Work, Too

By Al P. Nelson

Heavy set Adolph Sohr, one of Joe Brooks' good customers came tromping into the feed mill one snowy wintry morning, a frown on his wide face. He looked quite surprised when Milt Peters told him he could have his corn ground and mixed in about five minutes, as Ed Watson's batch would be through at that time.

"Believe me, since we had this new machinery installed during the last two years, we can give you fellows fast service." Milt beamed, watching the churning feed through the glass at the side of one of the two big two ton mixers. "That new hammermill, these mixers, the drags and the elevators make a regular factory assembly line. We can serve just about any farmer with a ton of mix in 15 minutes, or a little better."

A Little Kidding

"Yah, all you fellows haf to do is stand aroundt and press buttons, and then charge us farmers more," said Adolph grumbling.

Milt grinned. "That's the modern age, Adolph. You got labor saving machinery on your farms, too, ain't you? You used to have a hired man or two. Now I'll bet you and your wife and high school son handle the whole shebang, eh?"

"Yah, but we work hardt," complained the farmer. "And now Joe wants to start this appointment business for grinding and mixing. Where iss he? I want to bawl him oudt."

"Right in the office, Adolph," replied Milt. "But you don't have to take the appointment basis. It's only operative on Mondays and Wednesdays. It helps us give better service."

Heavy Adolph was already on his way to the office.

"Joe," he said, without greeting the feed dealer, "I read your adt about the appointment business. What the heck iss it?"

Joe smiled. "Why, Adolph, it's an optional plan we are trying for awhile. Farmers have been complaining they have to wait too long for service some days, even with our new machinery. So we thought we'd try grinding and mixing on appointment a couple days a week to spread out the load. Why don't you try it?"

Adolph snorted. "Me? Joe, I don't like to change. I have been bringing in my corn and oats here to get feed made for 12 years. I don't want to have somebody tell me when I haf to bring it in. When I get ready, I come. If I ain't ready, I don't come."

Joe Is Sympathetic

Joe nodded sympathetically. "I know just how you feel, Adolph. There are lots of things like that I want to do my own way, too. I like to go rabbit hunting some Sunday mornings — if I feel like it. But I can't. Why? Well, we got church at 11 o'clock. I'm on the church board. If the minister heard I went rabbit huntin' instead of coming to church, wow, I'd hear about it."

Adolph didn't bat an eyelash. "Well, you shouldt go to church on Sunday,

(Continued on page 26)

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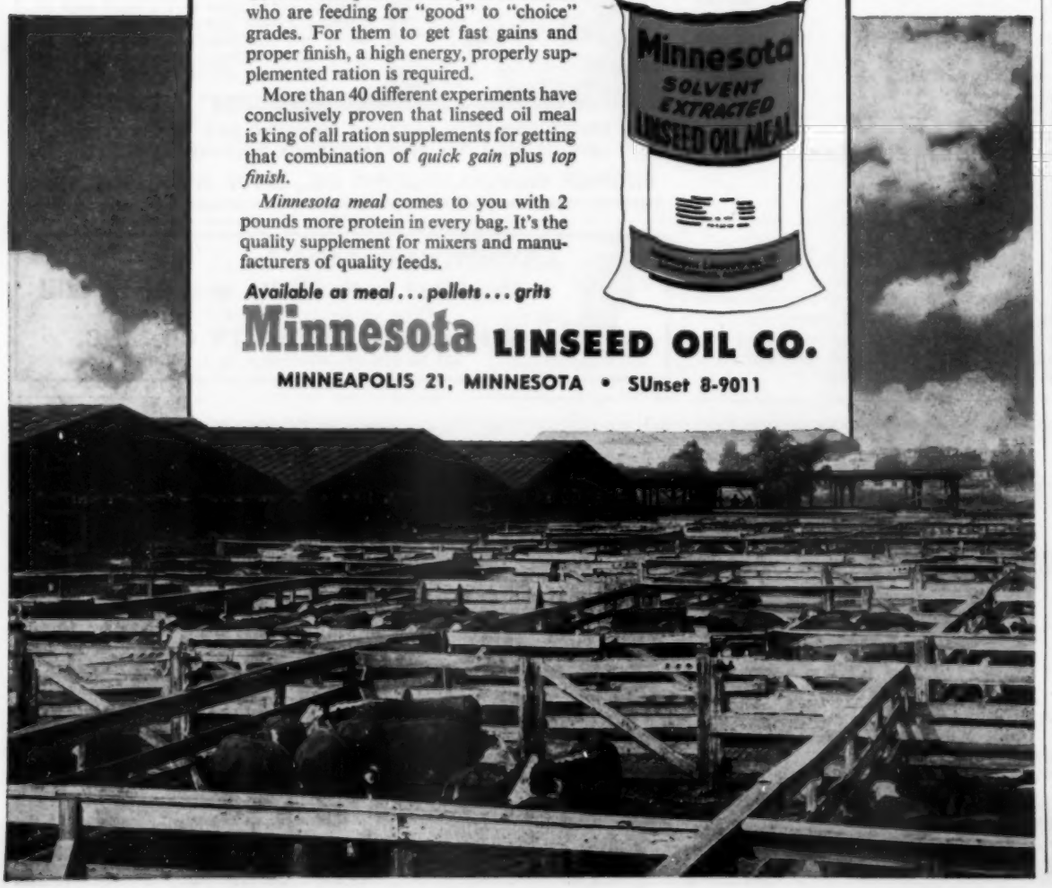

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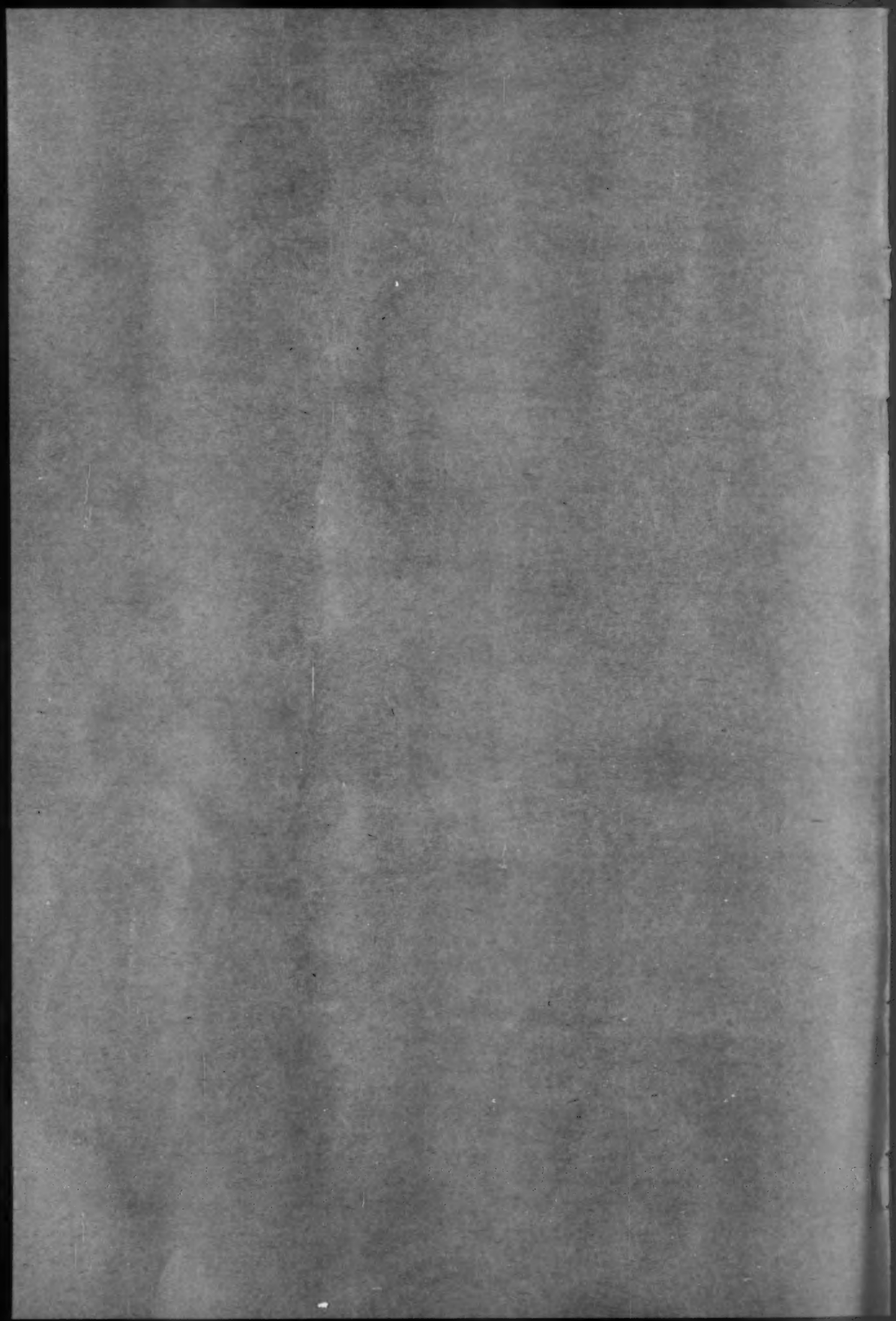

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FIRST in Tennessee, In Income Over Feed Cost Per Chick Started (934-C)

FIRST in Texas, In Income Over Feed Cost Per Chick Started (934-C)

EIGHTH in Missouri "B", In Income Over Feed Cost Per Chick Started (934-A)

FIRST in Florida, In Feed Efficiency (income over feed cost not reported) (934)

**Intermountain (Utah) Final Test Reports Not Yet Available. Above Based on Latest Reports.

Hy-Line 934-A is the largest-selling layer in America. In the six 1956-57 tests where it was entered, it averaged 41 cents more income over feed costs per chick started than the average of all non-Hy-Line entries. It laid more eggs. It produced eggs on less pounds of feed per dozen. It produced larger eggs. It lived better in the laying house.

And, through improved breeding, the Hy-Line 934-A, available in 1958, lays about *six more eggs* per bird than the model entered in these 1956-57 tests. It lives better in the laying house than the 1956 model. It eats less feed per dozen eggs than the 1956 model. As a consequence, it is even *more* profitable for *your* customers than the model entered in the 1956-57 Random Sample Tests.

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Hy-Line layers help your customers make more money from your feeds

Two leaders in the Hy-Line research team. This team gave America its first hybrid layers in 1940, continually breeds new and better varieties.

Five big breeding farms in Iowa and New York. Each year more than 1,250 experimental varieties are tested, in constant research for ever-better layers.

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PREVENTS COCCIDIOSIS · STIMULATES GROWTH

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UNISTAT is not only a better growth stimulant that increases feeding efficiency and improves pigmentation...*it is highly effective in the prevention of E. tenella, E. necatrix and E. acervulina coccidiosis* because it contains...

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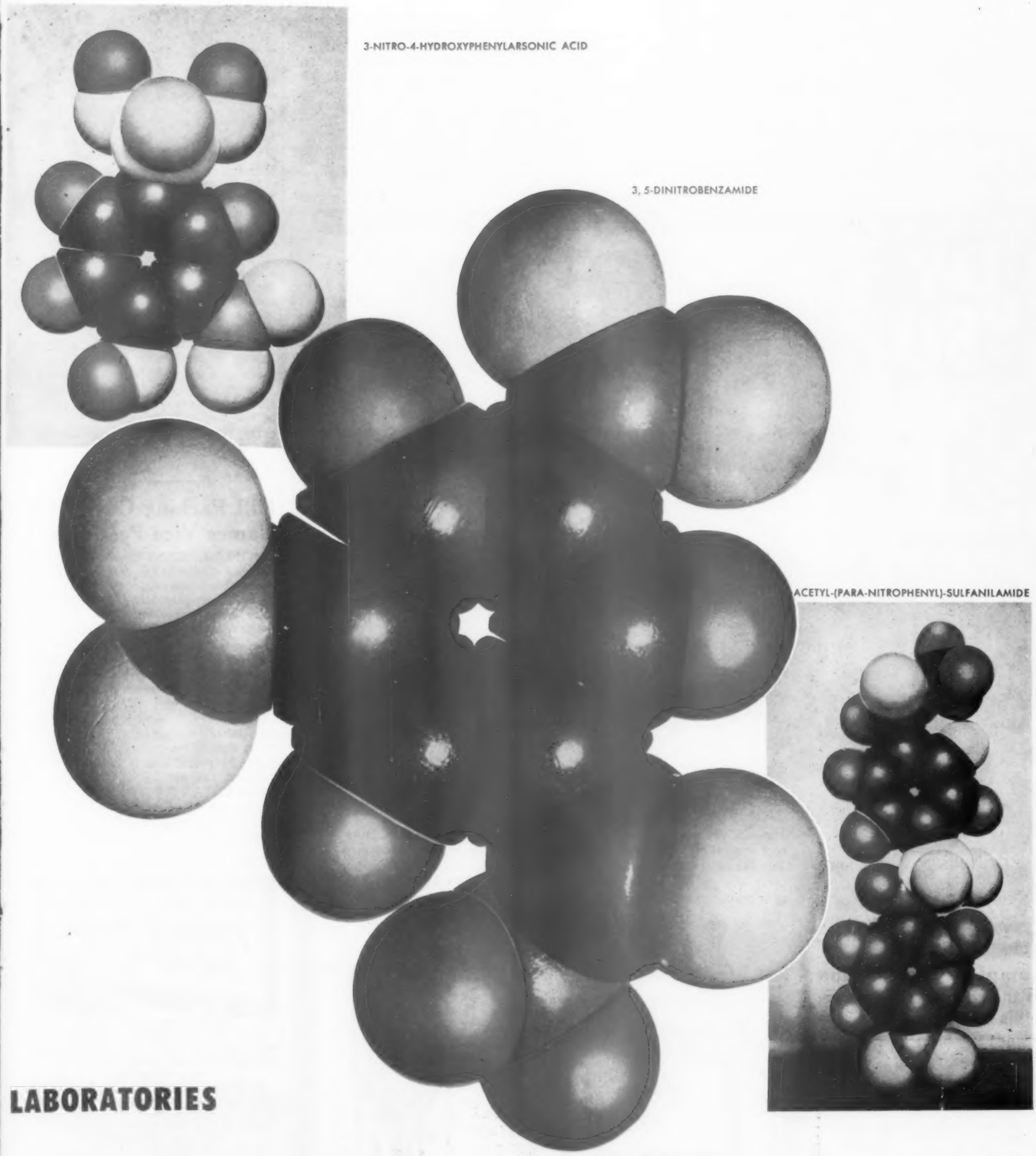

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the feed industry

Joe. You shouldt rabbit hunt some other time. I like to do stuff on time. I bring in my corn and oats every second Monday, you know that. Now I shouldt go on one of them appointment basis. I don't like it."

"Well, I can have our mobile service stop at your farm and grind and mix right there," Joe offered. "Wouldn't that be just as good for you?"

"Mobile service iss all right for some maybe," Adolph agreed stubbornly, "but me, I like to haul my grain to town. I haf been doing that for many years, Joe. And the oldt lady iss always wantin' to ride in with me to shop on Mondays, too. She likes that."

Joe looked thoughtful. "Adolph, as I recall it you usually come in here just about 11 a.m. every second Monday, don't you?"

"Yah," agreed Adolph stolidly, "I do. Then when you fellers iss grinding my feed, Mama and me we go to Gebhardt's Restaurant and get a pigs' knuckle dinner. By golly, he makes it goot. And such kuchen, too."

Joe smiled. "Well, then, why don't you let me put you down for grinding and mixing at 11 a.m. every second Monday. That won't change your present setup."

"Ach, it will," Adolph persisted. "If you put me down it will mean I haf to be here at that time."

"Well," pointed out Joe, "you have always been here at that time anyway."

"Maybe, Joe, but I don't want to be tied down. I like to go on chust like I haf been doing all these years. What's wrong with that?"

"Nothing is wrong with that policy, Adolph, but didn't you know that we are offering four salt blocks to every customer who agrees to a two-months trial of the appointment method?"

Adolph looked surprised. "You are?"

"Why sure," Joe declared. He spread out the local newspaper, and opened it to his full page ad announcing a change of policy. Then he pointed out the salt block offer about half way down the page.

"By golly!" said Adolph. "You are right, Joe. I didn't readt that far. I chust saw the big headlines and I got madt. Four salt blocks for nothin'. Hm. . . "

"Then you'll try the appointment basis for two months?" Joe asked. "Or would you rather try another day when first come, first served?"

"Any salt blocks on other days?" asked Adolph.

Joe shook his head slowly. "No, I'm sorry."

Adolph sighed. "Well, put me down on every second Monday for two months," he said. Then he looked at the wall clock. "Holy Smokes, I'm late now. Mama will be standin' out in front of Gebhardt's now and madt as a wet hen at me. But," he grinned a little, "when she hears about the four free salt blocks, maybe she will be happier. Mama don't like change any more than I do, Joe. But if we get somethin' for it, ach . . ."

Veterinarian Tells of Disease That Cuts Egg Production

ITHACA, N.Y.—New York poultrymen are confronted with a new poultry disease capable of causing a drop of 15 to 25% in egg production, according to a report recently at the annual Cornell Conference for Veterinarians.

Dr. M. C. Peckham, professor of poultry diseases at New York State Veterinary College, said that infectious avian hepatitis appears most frequently in pullets that have been in production a few months.

He said: "Flock owners will note an increase in the number of culls and increased mortality, once the disease attacks. However, the disease develops gradually and may go unnoticed for three or four weeks as egg production and feed consumption drop slowly."

Mortality may increase from 1 to 5% extending over a period of several months, he stated.

Further symptoms in identifying the disease were given by Dr. Peckham. These included: affected birds appear listless and may remain on the roost, have a dry, scaly, pale and shrunken comb. Some birds may be in fair flesh whereas others may be thin. However, in acute cases or at the onset of the disease, birds may appear in excellent condition.

He said the liver is the organ that is most frequently involved, but the spleen, kidneys, heart and other parts of the bird may be affected.

Dr. Peckham reported that different drugs including Streptomycin have been used with varying success.

Hill Packing Co. Names Vice President

TOPEKA, KANSAS — The Hill Packing Co., Topeka, has announced the appointment of Lawrence E. Davis as vice president in charge of sales and advertising of the firm.

Mr. Davis has been merchandising and sales promotion director for a soft drink company. He formerly held executive positions with two national advertising companies with grocery products clients.

The Hill packing firm packages and distributes canned and frozen pet foods nationally. It has been in existence 51 years, and it has plants in Topeka, Camden, S.C., and Watertown, S.D.

Two new plants are under construction at Columbus Grove, Ohio, and Bangor, Pa.

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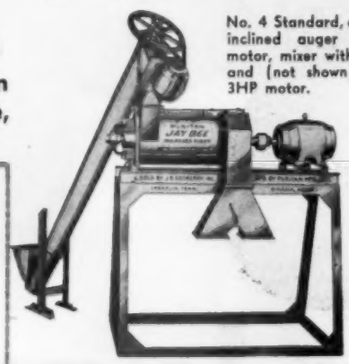

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For a thorough, even mix without lumps or balls — puts molasses into feed instead of feed into molasses.

Meets the most exacting formula demands — mixes all ingredients regardless of specific weights. In ½, 1, 1½, and 2-ton capacities.

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From poult to processor,

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prevents and c diseases than a

Start poults on 2 pounds of nf-180 per ton of total feed

Poults off to a fast, healthy start have a much better chance to finish out at top grade . . . return more profit over cost. Every one that dies is an outright profit loss . . . every poult you protect from early-life disease is a potential money-maker for you. That's why disease-fighting benefits of furazolidone (nf-180) pay off big. Fortified with nf-180, turkey starter feeds protect poults from a wide range of diseases. In fact, no other drug (antibiotic, sulfa, arsenical . . . anything) prevents and controls as many diseases as furazolidone.

Disease hazards face a poult from the day it is hatched. Egg-transmitted diseases may even endanger the young poult's life before it gets a start . . . may cause heavy early week mortality.

nf-180 fed at 2 pounds per ton of total feed, markedly reduces losses due to egg-transmissible diseases. In addition, it helps poults fight both identified and unidentified or sub-clinical diseases to which they are continually exposed. Free of the constant disease fight, your poults make better use of feed. For example, tests at a Midwestern university showed furazolidone gave 8% better feed conversion. Proof that poults grow faster, reach selling weight with a market-topping "furazolidone finish."

The cost of this wide-range disease protection is about 4½¢ per poult...for disease and stress protection from day-old to 8 weeks. Only a few cents more protects a bird all the way to market.

Continuous nf-180 protective feeding for growing and finishing

Even with the best management, dangerous stress periods and unexpected disease outbreaks can occur any time . . . break through flock resistance and cause heavy mortality.

That's where continued protective feeding with furazolidone fits into turkey growing profit plans. Continuous protective feeding of this lifesaving nitrofuran is an "internal management" program . . . provides birds with the extra resistance they need to fight off disease and keep gaining through stress periods.

Four years of testing at the University of Minnesota showed that in addition to superior disease protection, continuous nf-180 protective feeding improved feed conversion . . . stepped up growth rate, and reduced total mortality by 11 percent. Birds also showed a better finish. Researchers found that furazolidone protected birds required 8 lbs. less feed to reach market weight, saving about 3 cents feeding cost per pound of gain.

And furazolidone (nf-180) does its disease-fighting job in a unique way — by starving germs — letting no resistant strains build up. Furazolidone is used up as it works . . . there is no waste or harmful side effects. It's safe to use throughout the entire life of your flock . . . and with birds of all ages, including breeders.

controls more turkey any other drug...

Comparison of furazolidone (nf-180) with other drugs used in turkey feed medication

DRUG	Growth Stimulation	Typhoid & Pullorum	Paracolon	Para-typhoid	C.R.D. Sinusitis	Blue Comb	Hexa-mitiasis	Synovitis	Ulcerative Enteritis (Quail Disease)	Black-head	Stress Periods
*nf-180 (furazolidone) Level (grams)	YES 7½-10	YES P-50 T-100	YES P-100 T-150	YES P-50 T-100-200	YES P-50 T-100	YES P-50 T-100	YES P-100 T-100	YES P-50 T-200	YES P-50 T-100	YES P-100 T-150	YES P-50 T-100
Chlortetracycline Level (grams)	YES 7-10	NO	NO	NO	YES P-50 T-100	YES P-50 T-100	YES P-50 T-100	YES P-100 T-200	NO	NO	YES P-50 T-100
Oxytetracycline Level (grams)	YES 7-10	NO	NO	NO	YES P-50 T-100	YES P-50 T-100	YES P-50 T-100	YES P-100 T-200	NO	NO	YES 50
Bacitracin Level (grams)	YES 7-10	NO	NO	NO	YES P-50 T-100	YES P-50 T-100	NO	NO	NO	NO	YES P-50 T-100
Penicillin and Streptomycin Level (grams)	YES 2-5 (for penicillin)	NO	NO	NO	YES 75 Strep 25 Pen	YES 75 Strep 25 Pen	YES 75 Strep 25 Pen	NO	NO	NO	NO
Penicillin Level (grams)	YES 2-5	NO	NO	NO	YES T-100	YES T-100	NO	NO	NO	NO	NO
Penicillin and Bacitracin — 37½B plus 12½P Level (grams)	YES 5 Bac 1 Pen	NO	NO	NO	YES P-50	YES P-50	NO	NO	NO	NO	YES P-50 T-100
Erythromycin Stearate	NO	NO	NO	NO	P-? T-YES	P-? T-YES	NO	P-? T-YES	NO	NO	NO
2 - Acetylamino 5 - Nitrothiazole	NO	NO	NO	NO	NO	NO	NO	NO	NO	P-YES T-YES	NO
4 - Nitrophenyl Arsonic Acid	NO	NO	NO	NO	NO	NO	NO	NO	NO	P-YES T-NO	NO
A Sulfa—Tin—Arsenical Combination	YES	P - ? T - NO	NO	NO	NO	P-YES T-NO	P-YES T-NO	NO	NO	NO	NO

KEY: P: Prevention level in grams per ton of complete feed
T: Treatment level in grams per ton of complete feed

*Each pound of nf-180 contains 50 grams of furazolidone

Why take chances with drugs that fight only one or two diseases? Seldom do diseases strike singly. Associated diseases and opportunist organisms are usually waiting to attack weakened birds. Furazolidone is the *one* drug . . . the only one . . . offering wide-range effectiveness. It prevents and controls: Blackhead, typhoid, paratyphoid, pullorum, paracolon, hexamitiasis, CRD (air sac), blue comb (nonspecific enteritis), and synovitis.

Besides these specific diseases, there are a host of hard-to-diagnose, hidden infections that sap vitality and retard growth . . . rob your birds of energy even when they may seem to be doing all right. Furazolidone protects birds against stress. Growers find that continuous feeding of nf-180 keeps most sub-clinical infections well below the danger level. Furazolidone is palatable . . . stimulates feed intake, improves growth and feed conversion.

Turkey growers report on nf-180:

"Had 96.7% livability on 15,000"

Last year this grower started 15,000 T. Whites on 2 lb. nf-180 in the feed. Liked growth and livability up to ranging time, decided to continue with 2 lb. level in feed right on to finish. Said: "Results were wonderful . . . no real disease outbreaks at all . . . sold 14,540 birds . . . 96.7% livability . . . the best we ever had." This year started 15,000 more on 2 lb. nf-180 in feed. Got up to 12 weeks without a disease problem. Then grower changed to a new drug given him *free* to try in his feed to prevent blackhead. He had some blackhead outbreaks, and reported: "It didn't do the job nf-180 did. Even free, this new drug cost us money to use. We'll go back to nf-180."

"nf-180 gave us trouble-free season"

Turkey broiler grower had 8,000 on 2 lb. level of nf-180 from start to finish. Got to market without any disease troubles. Then put in another 8,000 for regular market. Kept these on 2 lb. level for 14 weeks and dropped to 1 lb. nf-180 per ton on to finishing. This flock just as trouble-free as first one.

"We wouldn't be without it"

Grower keeps poults on feed with 2 lb. nf-180 all through brooding period and first week on range. This stopped most all early mortality. During growing period he uses 2 lb. nf-180 stress feed whenever birds look like they need it. Says: "We like this protection . . . wouldn't be without nf-180."

"Practically stopped paracolon losses"

Paracolon losses among poults had this grower in real trouble. His state lab recommended starting birds on 2 lb. level of nf-180. Said: "nf-180 practically eliminated death losses from this disease. Poults made better gains and we got by on less feed."

"nf-180 pulled us through tight year"

Grower reported: "We couldn't have stood our usual mortality losses this year the way prices were. Using nf-180 kept disease down so we came through with very little trouble. Better feed conversion saved us money and our birds finished out well. Got a top price. Don't believe we could afford to raise turkeys without nf-180, especially in a tight year."

"Finished best flock in years"

This grower's last flock had made poor gains, suffered frequent off-feed periods and disease setbacks. His feed serviceman suggested nf-180 in the feed this year to prevent these troubles. Birds were started on 2 lb. level nf-180 feed and kept on it all through brooding period. Grower liked the size, vigor and livability of his flock so well he decided to continue 2 lb. level on to marketing. "Our death losses were the lowest and finish the best we'd had in years," he said.

For positive disease control . . . better turkeys, bigger profits, ask your feed man for furazolidone-fortified turkey feeds.

Consider the disease protection offered by a furazolidone (nf-180) medication program, and you'll want to join the many successful nf-180 users. Here are feed medication plans that fit your needs:

1. **STARTING PERIOD** . . . use 2 lb. level nf-180 in all feed from start, through brooding period and first week on range.

2. **GROWING-FINISHING PERIOD** . . . check your past history and local area disease problems. Choose the protective feeding plan you need:

- 2 lb. level nf-180 continuously should be used to protect against blackhead, hexamitiasis and other diseases.
- 1 lb. level nf-180 continuously* gives wide protection against stress and most diseases where blackhead and hexamitiasis are not likely problems.
- week-a-month plan* for areas where disease is not a serious problem. Many growers report good luck using a 2 lb. level nf-180 stress feed one week a month to clean up birds, fight stresses, and knock out disease organisms before they can build up and trigger trouble.

*If disease outbreaks should occur on these low-level nf-180 plans, higher levels (2, 3 and 4-lb. nf-180 per ton) can be used as specific treatments. Ask your feed man for proper levels and lengths of feeding periods. Furazolidone (nf-180) also comes in tablet form. nf-180 tablets are mighty helpful to treat the first few sick birds noticed to keep trouble in rein while nf-180 medicated feed is being put in for flock treatment.

Try furazolidone protective feeding. Feed it from start to finish. You'll experience the most disease-free season . . . finish the best birds you ever had. Give your flock the "furazolidone finish" and gain extra profits.

Drug levels

nf-180 levels always refer to pounds of nf-180 per ton of complete ration. If nf-180 is added to supplements and concentrates, then proportionately higher levels must be used to compensate for drug dilution by grain. Furazolidone is the active drug ingredient in nf-180 mix. A 2 lb. level of nf-180 per ton appears on tags as 100 grams or 0.011% furazolidone.

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nf-180
One of those lifesaving
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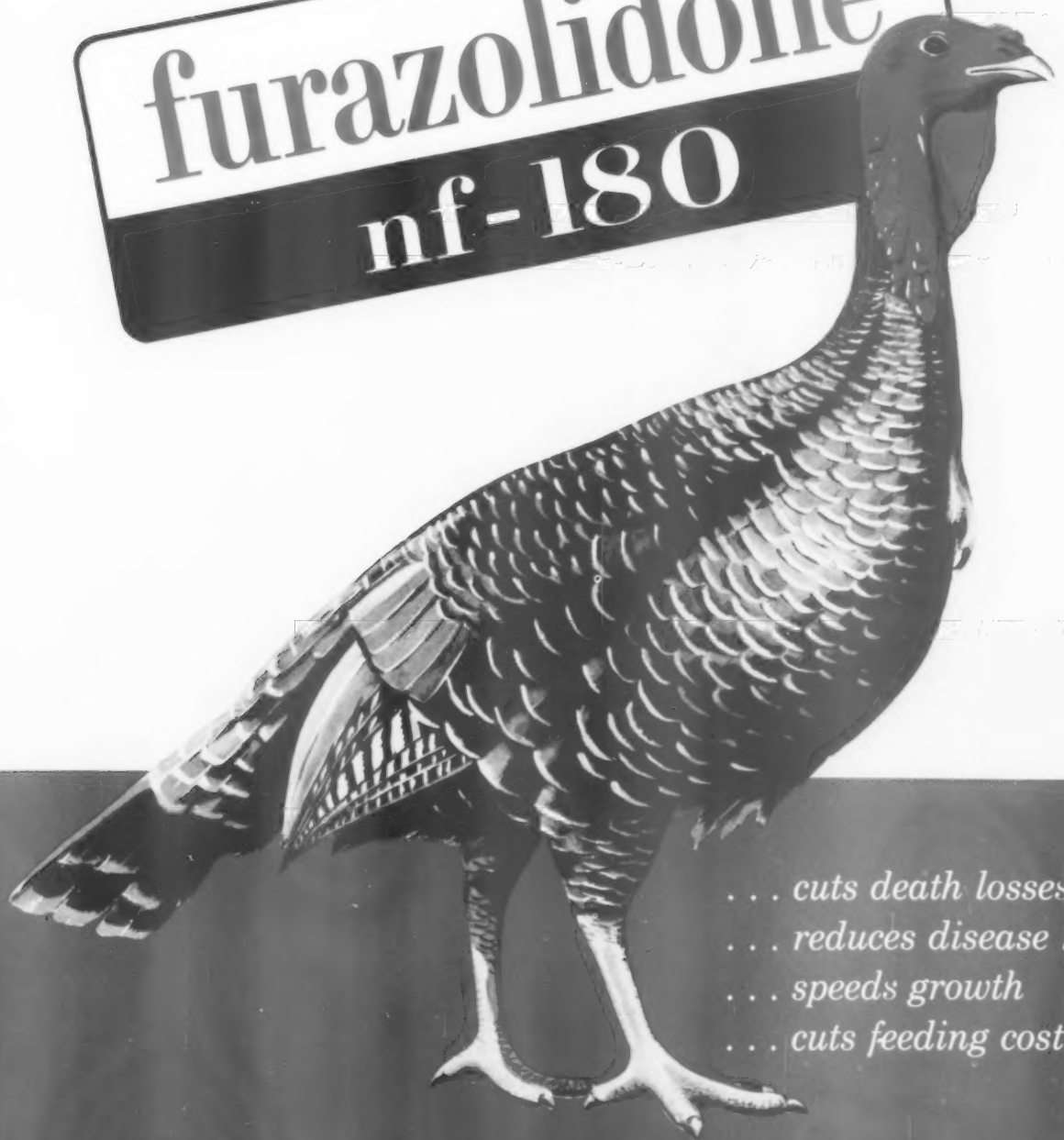

. . . cuts death losses
. . . reduces disease risk
. . . speeds growth
. . . cuts feeding costs

E. W. Wieting

DISTRICT MANAGER—E. W. Wieting has been appointed district sales manager for the "Chiefs district" of Wayne Feeds, with headquarters in Indianapolis, according to E. D. Griffin, vice president and general sales manager of Allied Mills, Inc., Chicago, Ill. He succeeds T. W. Graham, who has been promoted to central regional sales manager. Mr. Wieting worked in feed sales and sales management in southeastern Wisconsin, west central Indiana and the home office of McMillen Feed Mills at Ft. Wayne, Ind., before joining Allied Mills in August, 1957. He was graduated from Lakeland College at Sheboygan, Wis., and took graduate work at the University of Wisconsin.

Tests Show Protein Needs of Calves

LEXINGTON, KY. — Calf rations with less than 13% crude protein will not properly support the growth of dairy calves, Leonard Brown, dairy researcher with the Kentucky Experiment Station, reported following a recent test.

"The test shows," Mr. Brown explained, "that a 13 to 16% crude protein dairy calf starter is sufficient to maintain normal growth when fed with a limited amount of whole milk and good alfalfa hay. Actually the protein level for such starter rations should be at least 13 to 14%."

He used 40 calves in the test, splitting the group into five units of eight calves each, for an 84-day test. Each group was given about 211 pounds of milk per calf in a 49-day period, based on body weight, in addition to about 41 lb. of hay and 160 lb. of the experimental starter rations.

The starter rations had protein levels of 8.5, 13.0, 16.2, 20 and 23.7%.

The starters with the two highest protein percentages did not significantly outgain the 13.0 and 16.2% starters, but the group getting the 8.5% did not get the growth support needed for normal weight gains, Mr. Brown reported.

The test was based on the "limited milk-hay-starter" program widely in use on Kentucky dairy farms.

The calves on the 23.7% crude protein ration averaged a gain of 1.12 lb. per day; those on the 20% ration gained 1.12 lb., while those on the 16.2% starter averaged 1.30 and those on the 13% ration 1.02 lb.; those on the low level 8.5% starter averaged only .79 lb.

Mr. Brown said the 16.2% starter was the best in the test based on a lower cost than either the 20% or the 23.7% ration.

The starter was composed of ground yellow corn, crimped oats, wheat bran, linseed oil meal, soybean oil meal, corn distillers solubles, salt, bonemeal, vitamins and molasses.

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70% corn distillers solubles
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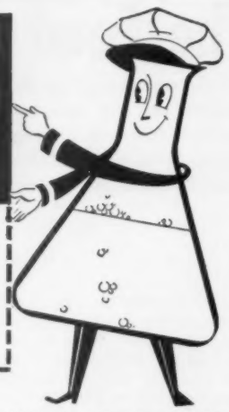

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- ALSOL
- FEEDSOL
- FORTIFIED CONDENSED FISH SOLUBLES

Just mix Cattle ManAmar as directed with your local grains and concentrates. If our laboratories can help you with analyses, drop us a line. That's our job, to help YOU. *Or write for a Park representative to call on you at some convenient time!*

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The Feed Grain Problem

"There appears to be no method of bringing feed grain production and use into balance except by pricing feed grains so that they can be profitably fed to livestock. This is the scheme that will be followed inevitably. The longer this solution is postponed, the more serious the problem will become."

By Dr. T. A. Hieronymus
University of Illinois

EDITOR'S NOTE: The problem of surplus feed grain production and supplies, of course, has a major effect on feed prices and livestock and poultry production. Many feed men will be interested in the accompanying discussion of this problem. The author, Dr. T. A. Hieronymus, associate professor of agricultural marketing at the University of Illinois, points out that the feed grain build-up has become chronic and particularly serious during the past four years. This article is taken from a talk by Dr. Hieronymus at the American Farm Bureau Federation convention.

v v

In attempting to review the feed grain problem as it currently exists in American agriculture, four questions appear to be pertinent:

1. What is the nature of the problem?
2. How did it develop?
3. How does it relate to the total agricultural problem?
4. What are the guideposts to solution?

NATURE OF THE PROBLEM: The current problem has two principal parts: There are substantial carryover stocks of feed grains, largely owned by Commodity Credit Corp. and current rates of production of feed grains are greater than current use. The latter of these two parts is more significant than the first. Not only is there a large stock with which we must deal, but this stock appears to be getting larger each year. If the inventory build-up can be stopped, the problem of liquidation can be undertaken.

The urgency of the situation is imparted by the chronic build-up. Liquidation of stocks is less urgent.

The carryover of feed grains at the beginning of the current crop year was estimated at 47.1 million tons.

The feed grain surplus problem is most properly dated from the fall of 1952. No single accumulation is alarming in proportion. It is the regularity of the accumulation that has given rise to what is now a troublesome carryover, and that indicates the need for corrective action.

DEVELOPMENT OF THE PROBLEM: There have been two periods of major increase in feed grain production: from the prewar to the postwar period and during the past four years.

The accumulation of inventory which is causing the feed grain problem is associated primarily with the increase in production of the past four years. (See Table 1.)

Increases in production of the different feed grains have not been uniform. We can tie the increase in feed grain carryover down to increases in barley and grain sorghum production during the past four years. Part of the change in production is the result of increased yield and part is the result of changes in acreage.

Without the increases in grain sorghums and barley production during the past four years, the accumulation of feed grains would have totaled 8 million tons rather than the 25 million tons currently estimated.

Increased feed grain acreage has been closely associated with production controls on other crops, including wheat and cotton.

Long-run and short-run effects of changes in feed grain supplies on livestock numbers are different. The initial impact of a feed grain supply increase is on the hog population, but as the increase persists, it becomes distributed over the entire livestock population through the interworking of the livestock-feed price ratios. Increases in hog numbers result in less favorable hog-feed ratios than egg-feed ratios, milk-feed ratios, etc. This results in shifts from hogs to poultry, dairy, etc., and brings the livestock population into balance at the higher level.

Disappearance of feed grains for

TABLE 1. Feed Grain Production and Proportionate Distribution by Kind

	Feed grain produced, million tons per year					Per cent of total production			
	Total	Corn	Oats	Barley	Grain sorgh.	Corn	Oats	Barley	Grain sorgh.
1926-30	96.7	69.6	19.0	6.3	1.8	72.0	19.6	6.5	1.9
1931-35*	96.1	71.4	17.3	5.7	1.8	74.3	18.0	5.9	1.9
1936-40**	97.8	71.2	17.9	6.4	1.9	72.8	18.3	6.5	1.9
1941-45	113.1	82.0	20.3	8.0	3.5	72.5	17.9	7.1	3.1
1946-50	118.9	84.7	21.4	6.7	3.8	72.9	18.0	5.6	3.2
1951-53	110.8	88.0	19.5	5.9	3.4	75.3	16.7	5.1	2.9
1954-57	130.8	91.3	21.7	9.5	8.4	69.8	16.6	7.3	6.4

*1934 omitted. **1936 omitted.

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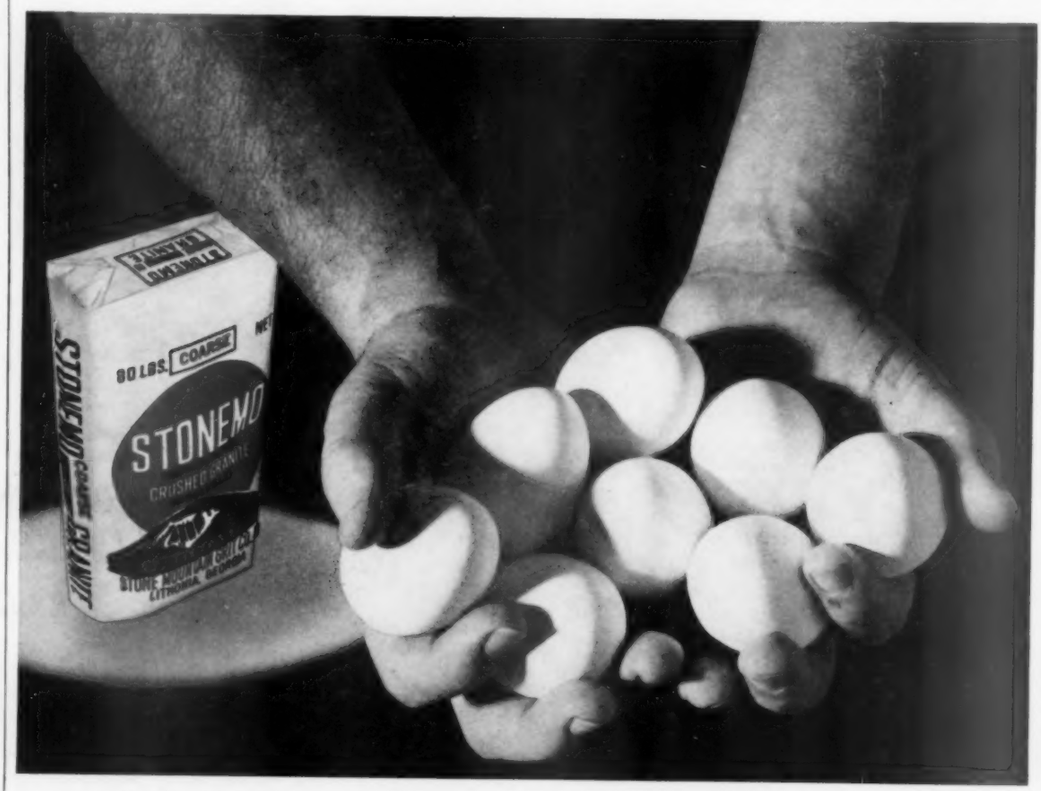

Sell The Right Size Chickens' "Teeth"...FOR THESE EXTRA EGGS*

CHICKENS DON'T HAVE TEETH, but they "chew" their feed with their gizzards. How many *extra* eggs your customers get depends upon how thoroughly and efficiently this chewing (or grinding) is done.

For *extra* eggs, your birds need gizzard teeth that are hard, sharp-cutting, quick-grinding and the *proper size.* Stonemo hard granite grit is scientifically processed to give your birds *extra* grinding surfaces.

Coarse Size Stonemo Granite Grit Magnified 5 Times.

Stonemo's extra grinding surfaces rip open the cellulose encasements of even the fine particles in the feed, expose the nutrients to the digestive acids for good assimilation.

Layers Need Coarse (Hen Size) Stonemo
It Is Not Enough To Sell Stonemo—

So your customers can get the most out of your laying mash, recommend COARSE (HEN) SIZE STONEMO. Coarse Stonemo is the right size for laying hens. It helps your customers get *extra* eggs from your feed through better digestion.

MAKE STONEMO YOUR ASSISTANT SALESMAN

Whenever you sell poultry feed – sell Stonemo – and the right size Stonemo to do the grinding job. This hard granite grit with the extra grinding surfaces pays you and your customers handsome dividends through better feed conversion. Get all the facts. Full feeding directions for all types of poultry will be gladly sent you upon request.

STONE MOUNTAIN GRIT COMPANY, INC., Lithonia, Georgia

*Iowa State College, Cornell University, Ohio Experiment Station.

STONEMO GRANITE GRIT -The Grit with the

livestock feed has not increased so rapidly as production.

From a consideration of how the surplus feed grain problem started and since developed, one lesson stands out: If feed grains are to be used, they must be priced at levels that will return profits to feeders.

RELATION TO THE TOTAL AGRICULTURAL PROBLEM: The problem of agricultural surplus production has by now quite logically backed into the area of feed grains. A relative increase in the production of feed concentrates and livestock has long characterized American agriculture. It is characteristic of any agriculturally wealthy nation. Every nation or area harvests its lands that are fit only for grazing with animals —cattle, sheep, goats, and reindeer. It puts its croppable lands into food crops, such as wheat, rice, rye, oilseeds, vegetables, etc.

As production from these crop lands increases past minimum caloric requirements, crop land is diverted to the production of feed, particularly feed grains. Feeding livestock from the products of croppable lands reduces the total volume of production to requirements on a caloric basis. Only a few areas of the world can afford this relatively expensive type of feed production. Approximately three fourths of the products of U.S. crop land are used for feeding livestock.

For some time agricultural production has been expanding faster than population. Diversion of land from food to feed is to be expected in this circumstance. How much of the diversion described above, which has caused feed grain production to increase rapidly in the past four years, would have occurred without the impetus of price programs for cotton, wheat and rice is impossible to say. Probably the rate of diversion would have been slower. The diversion to soybeans would probably have had the same effect, but would have occurred more slowly.

The diversion of acreage by price programs has regional repercussions. Production of feed grains and soybeans, outside the corn belt, on land diverted from cotton, wheat and rice aggravates the problem in the Corn Belt states. For example, in 1957 almost as many acres of grain sorghums were planted in Kansas as acres of corn in Iowa, and nearly as many acres of grain sorghums in Texas as corn in Illinois. Even allowing for the normal shifting of land from food to feed, one cannot but wonder whether the corn belt has not been forced to carry a disproportionate share of the load.

GUIDEPOST TO SOLUTION: As we contemplate the problem, the first question that occurs to us in what would have happened had there been no price programs since the Korean war? The question has two parts: what would have happened to production, and what would have happened to use? While we cannot turn back events, an answer to this question would be helpful in correcting mistakes and guiding future programs. Unfortunately, we can only conjecture.

Less feed grains would likely have been produced. Land would have been diverted from wheat, cotton and rice at a slower rate, although probably not much slower because wheat, cotton and rice have limited markets that are difficult to expand. More likely about the same amounts of each of these allotment crops would have been produced on more acres with less intensive cultivation.

It is doubtful that price programs for feed grains have had much direct effect on production. Possibly some land in grain sorghums and barley would have reverted to grass. Compliance with corn acreage allotments has not been great. Some land has been diverted from corn to soybeans, but soybeans are 80% (by weight) feed. Corn production practices have been intensified.

The fact is that it is difficult to find any very productive land that has been taken out of production in recent years. When food and fiber needs are met, land produces feed.

Utilization of Feed

The real difference that the absence of programs would have made is in the utilization of feed. One thing is certain: Feed production and utilization would have been in balance. Feed would have sold at prices that would have made it possible to increase livestock production. No one but the U.S. government would have accumulated the inventory that now exists.

Unanswered is the question about the prices that would have prevailed. To answer this question we need to make certain assumptions: first, that production would have been the same as it has been and, second, that all of the adjustment would have been made in hog production.

Feed grain disappearance for feed the five crop years 1952-56 totaled 102 million tons. The best guess is that 47 million tons went to hogs. The average accumulation was 5.4 million tons a year. Accordingly, feed for hogs should have totaled 52.4 million tons a year, or 11.5% more than actual use.

During the five years 1952 through 1956, pork consumption averaged 66.4 lb. per capita; 11½% more is 74.0 lb. Total meat consumption averaged 157.1 lb. per capita. Adding the increase in pork to this total makes 164.7 lb., or a 4.8% over-all increase. This is not more meat than we could have used. Per capita use in 1956 was 166.8 lb., or 2.1 lb. larger than the figure postulated here.

Effects Uncertain

The price effects of additional meat production are uncertain. The general thought is that a small increase in hog production has a decidedly depressing effect on price. In the short

(Continued on page 36)

OR EXTRA MEAT SELL CHICKENS' "TEETH"

Sell The Right Size Chickens' "Teeth"... FOR EXTRA MEAT*

If you have broiler customers who are having a hard time to make a profit, here is a tip you and they will appreciate. *For faster feed conversion* into heavier meat—broilers need gizzard teeth that are hard, sharp-cutting, quick-grinding and the *proper size*. Recommend Stonemo and these feeding directions.

1st to the end of 3rd week—Fine (Chick Size) STONEMO
4th to end of 6th week—Medium (Growing Size) STONEMO
From 6th week to slaughter—Coarse (Hen Size) STONEMO

AND HERE IS WHAT WILL HAPPEN

1st. Birds will rid their gizzards of litter, fiber and feathers —make room for more meat-producing feed.

2nd. Less feed will be used to produce a pound of meat, even on an all-mash feeding program.

3rd. Birds get to market quicker—your customers start the next lot of broilers earlier—save time and money.

If your growers have been using no grit or Fine (Chick Size) STONEMO, you will be interested in our Research Findings reproduced in the chart at the right.

Feeding Program	Growing Period	Weight	Feed Efficiency	Cost per lb. of Meat
All Mash—No Grit	9 wks	3.36	2.63	17.02
All Mash—With Fine (Chick Size) STONEMO	9 wks	3.42	2.59	16.75
All Mash—Recommended STONEMO Feeding Program	9 wks	3.44*	2.55	16.53

Considering all costs (chicks, feed, grit, and incidentals) a saving was made of almost ½¢ per lb. or $16.85 per thousand broilers. Chick cost was 13 cents. Average feed cost was figured at $5 per hundred and the Grit was figured at local retail cost of 1¢ per lb.

MAKE STONEMO YOUR ASSISTANT SALESMAN

Wherever you sell feed for broilers, sell Stonemo with it. Point out how changing the Stonemo size the 4th and 7th weeks to larger Stonemo will increase feed efficiency.

If you would like further facts, write:

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One day's AUREOMYCIN® EXTRAS!

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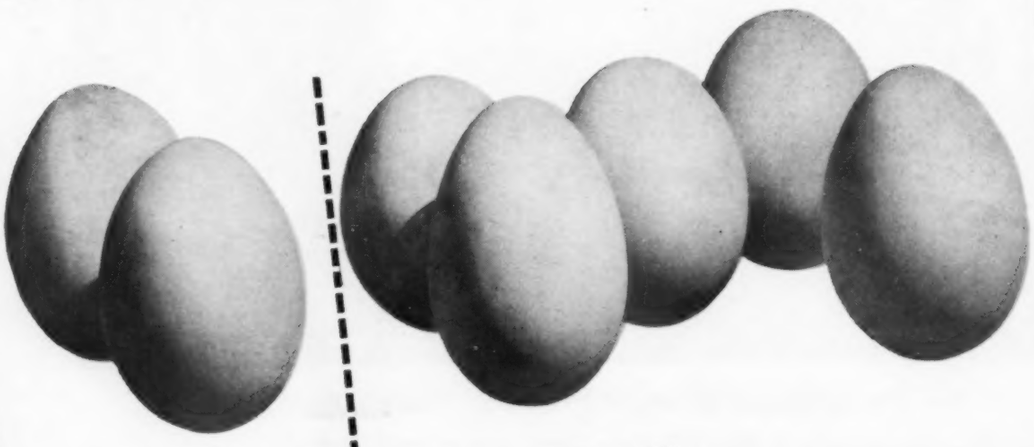

These 2 pay for the AUREOMYCIN *...these 5 are pure profit!*

Five extra-profit eggs a day from every 100 hens – that's typical of the results you can expect when you use AUREOMYCIN in good layer feeds.

AUREOMYCIN boosted the output of high-producing flocks by 7 eggs a day per 100 hens! And it took *only* 2 eggs to pay for the AUREOMYCIN; the other 5 were pure profit.

Wide-range AUREOMYCIN increases egg production because it keeps hens at peak health. They lay *extra* early and late season eggs, *extra* eggs during hot and cold weather, *extra* eggs in the presence of blue comb and CRD.

Get *your* extra-profit eggs. Ask your feed manufacturer or feed dealer for layer feeds containing AUREOMYCIN.

• • • • •

If layers go off feed, bring them back to normal eating and good health with AUREOMYCIN® Soluble in the drinking water. It is fast, effective!

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You're giving your customers EXTRA profits with good layer and broiler feeds containing AUREOMYCIN® Chlortetracycline. 2 extra eggs *pay* for the AUREOMYCIN—5 other extras are net profit!

That's the result obtained with *high-producing* hens. Even better increases can be secured by protecting hens from disease or bringing them out of laying slumps.

Shown here are two of the 1958 Cyanamid advertisements to your egg producers. Over and over again, with 7,700,000 advertising impressions per month, Cyanamid will help you sell layer and breeder feeds in 1958.

Your flock owners never really pay for **AUREOMYCIN . . . IT PAYS THEM!**

CYANAMID

More Eggs per 100 Hens

One year's

AUREOMYCIN® EXTRAS

CHLORTETRACYCLINE

from 100 hens!

How would you like to get 213 dozen extra eggs a year—7 eggs a day—from every 100 hens you own? Layer feeds containing AUREOMYCIN have increased production by that much and more in flocks all over the country.

Since *only* 2 eggs a day pay for the AUREOMYCIN for 100 laying hens, your *yearly gain is 152 dozen.* That's extra income without extra hens or extra chores! And AUREOMYCIN cuts disease and mortality costs as well.

If you haven't been getting these money

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run this is true. As hog marketings increase from summer lows to winter highs, prices decrease much more than proportionately. Similarly, year-to-year changes in hog prices are proportionately greater than year-to-year changes in supply.

But these two facts are not closely related to the question at hand. They have to do with the short run, and this with the long run. They have to do with live animals, and this with meat consumption. Given the long run, in which consumers have an opportunity to adjust to the larger supplies and the effects of consumer reaction work themselves through the marketing system, the relation of quantity and price becomes quite different.

E. J. Working, after very thorough study of the question, concluded ". . . in the short-run the demand for meat at retail is somewhat inelastic. However, if the supply of meat is decreased and the supply is maintained at the lower level over a period of years, the price will, after its initial rise, gradually fall until it stabilizes at a point where the increase is less than proportional to the decrease in supplies. In other words, in the long-run demand for meat at retail is elastic, and a decrease in supplies will result in a smaller aggregate retail value than will the larger supply."

From this result, and given time for adjustments between retail meat prices and live animal prices, we can logically argue that hog prices would have averaged 4.8% lower than they actually did during the five years in question. During these five years the average price was $18.46 cwt. for barrows and gilts at Chicago. Correction for a 4.8% increase in meat supply would give $17.61 as the average at the higher production rate.

A hog-corn ratio of about 12 to 1 is approximately equilibrium — the amount that will keep production and use of feed in balance. A per hundredweight price of $17.61 divided by 12 is $1.47, the indicated five-year average price of No. 3 corn at Chicago. The price of No. 3 yellow corn over the past five seasons has averaged $1.47 a bushel. This is not a provable figure, but the method is logical and the figure is reasonable. The size of the accumulation has not been great in individual years. One would therefore expect that the effects of not accumulating would not have been great.

The pattern of prices during the five-year period would have been different. Prices would have been lower at the beginning and higher at the end. There can be little doubt that without price programs the price of corn would now be higher than it is and there would be a normal carryover of feed grains.

Conclusions

As we look at the feed grain problem, several things appear to be reasonably clear.

First: The present program is untenable. Inventory increases are being accumulated each year. At some point this build-up must be stopped.

Too much money is going into costs of programs and handling of inventories. We can reasonably calculate that some of the corn now being sold by CCC below the current market has cost $2.60 or more a bushel. Part of this cost is for administering the programs, part is for interest, and a large share is for storage. These are monies that do not get back to farmers.

Second: It is doubtful that the answer to the problem lies in the direction of production controls. There is nothing in the record to indicate that they have worked in the past. Reaction to the soil bank seems to indicate that the cost of getting productive land out of production of feed grains in sufficient volume to importantly affect the balance of production and use would be prohibitive.

Third: The answer also does not lie in the direction of increased nonfeed use. There are no new industrial uses with expansible markets. The logical destination for exports of feed grains is North Europe, where livestock populations are large. But throughout this area there is a problem of lower than desired farm prices. Most of these countries have schemes for protecting domestic prices. As the U.S. lowers export prices, this protection is increased. The most prosperous consumer market, and hence the best market for feedstuffs, is in the U.S.

Fourth: In designing price programs, inter-regional effects must be taken into account. If areas that specialize in particular commodities elect to build programs on production controls, they must go the whole control route and actually reduce over-all agricultural production.

Fifth: There appears to be no method of bringing feed grain production and use into balance except by pricing feed grains so that they can be profitably fed to livestock. This is the scheme that will inevitably be followed, whether now or later. The longer this solution is postponed, the more serious the problem will become.

Sixth: The principal feed grain producers of the U.S. would have been very much better off had prices been reduced five years ago. Very little has been gained and a great deal has been lost. Consumption potential has been foregone. This money consumers would have paid for meat and these appetites for meat have not been

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saved up. They are forever lost. A mistake was made in 1952 when production and consumption were allowed to get out of balance. The consequences of this mistake are now apparent. Because of the size of the carry-over inventory, these consequences will be with us for some time to come.

Seventh: The imbalance between feed grain production and use is not great. Accordingly, the effects of reducing or eliminating feed grain price supports will not be great. It appears that the negative effects of price programs are strong enough to make it possible for feed grain prices to reach higher than current levels after the immediate shock of removal of supports is passed.

These seven considerations do not present a solution to the problem. They do establish a framework within which a solution must be developed. Attempts in the past to work out solutions without recognizing these fundamentals are what has led to our present difficulty.

Simple and Complex Dairy Feeds Studied

COLLEGE STATION, TEXAS—A dairy herd which receives an adequate amount of good quality roughage will produce as well on a simple feed mixture as on a complex mixture, according to a research report from the Texas Experiment Station.

S. E. Carpenter of the substation at Tyler, Texas, said that a simple grain mixture was compared with a complex mixture in a double reversal test. The cows received hay, silage and pasture as a group. Grain mixtures were fed to each cow according to the amount of milk produced. The simple mixture contained cottonseed meal, ground ear corn, steamed bone meal and salt. The complex mixture contained cottonseed meal, ground ear corn, crimped whole oats, sorghum meal, wheat bran, dehydrated alfalfa meal, steamed bone meal and salt.

"On the simple mixture," said Mr. Carpenter, "the cows produced 24.9 lb. of milk on 9.3 lb. of feed per cow per day, as compared with 24.7 lb. of milk on 9.2 lb. of the complex mixture. These differences are not statistically significant.

"There was no evidence that the simple mixture was inadequate for the level of production obtained. At prevailing prices, the simple mixture cost 16¢ less per 100 lb. than the complex mixture. The cost of grain per 100 lb. of milk was $1.09 for the simple mixture and $1.15 for the complex mixture."

OPENS FEED BUSINESS

ELDORA, IOWA — Ray Morlan, former Eldora feed salesman, has opened his own retail feed business here under the name of Morlan's Big 10 Feed Co. He will distribute his own brand of feeds and also Larro feeds for General Mills, Inc. Bulk feeds and truck delivery will be a part of the business.

J. B. Ells Joins N. M. Extension Dairy Staff

STATE COLLEGE, N.M.—J. Borden Ells has been appointed extension dairy specialist at New Mexico A&M College, it was announced by Dr. Robert H. Black, dean and director of agriculture. Mr. Ells, dairyman in the Clovis, N.M. area for the past 10 years, will succeed E. E. Anderson, who retired recently after 32 years service.

A native New Mexican, Mr. Ells obtained his B.S. degree in agricultural education from New Mexico A&M College, his M.S. degree in dairy husbandry from Oklahoma State University, and has done advanced work at the University of Wyoming. His experience includes serving as DHIA tester in the Portales-Clovis area, vocational agricultural instructor at Clovis and Plainview, Texas, and as an instructor with the University of Wyoming at Laramie. In addition to dairying, he has been an instructor with the veterans' on-the-farm training program for the past 10 years.

Auburn Reports Broiler Experiment

AUBURN, ALA. — Hoyt Warren, poultry specialist at Alabama Polytechnic Institute, reported recently on some research on finishing rations for broilers.

Broilers were fed the first seven weeks on 20% protein broiler mash. During the remaining two weeks of the experiment, they were fed different ratios of broiler mash with corn meal, broiler pellets or cracked corn. According to Mr. Warren, the most economical gains were made when the birds were fed one part corn meal to three parts mash. The next best was two parts broiler crumbles and one part cracked corn.

The specialist said that these findings suggest a lower protein ration for the two-week finishing period, a cut in costs and a good opportunity to use yellow corn either cracked or as meal. It also adds color to the birds' diet, the poultryman pointed out.

Feed costs and feed per pound of gain are higher for the last two weeks than for all the rest of the broiler's life, so a saving here is important, said Mr. Warren. He suggested that broiler growers who have homegrown yellow corn, crack or grind the grain and feed it with a 20% broiler mash during the last two weeks. Producers who buy the growing mash can feed the finishing ration on top of the mash.

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If you are not already a Wayne Feed Dealer, ask someone who is. He'll tell you that you'll get the "Head Start" you're looking for with top quality Wayne Feeds . . . backed by regular on the farm sales and service calls by specially trained Wayne fieldmen, working with you.

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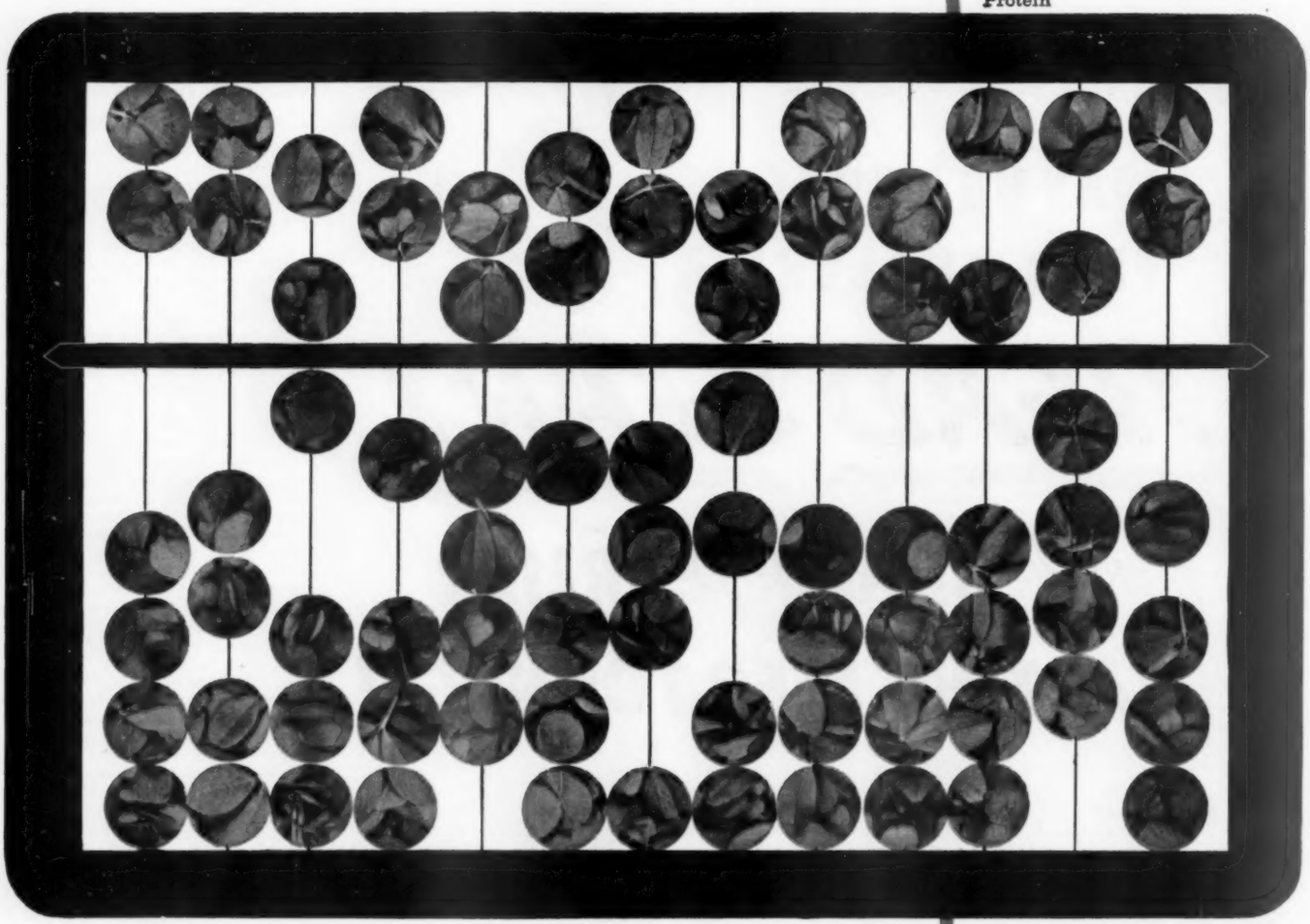

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DEHYDRATORS' CONVENTION SCHEDULE

Wednesday, Feb. 5

10:00 a.m. Board of directors meeting.
1:30 p.m. Board of directors meeting.

Thursday, Feb. 6

10:00 a.m. Research Council meeting.
10:00 a.m. Bowling tournament.
12:30 p.m. Board & council luncheon.
1:30 p.m. Grey Line tour.
2:00 p.m. Research Council meeting.
6:30 p.m. "Western Jamboree."

Friday, Feb. 7

9:30 a.m. Convention called to order.
12:15 p.m. Board of directors meeting.
12:30 p.m. New president's luncheon. Speaker, Alex Dreier, noted news analyst.
2:00 p.m. Convention reassembles.
4:00 p.m. "Old MacDonald" shown. Board of directors meeting.

Saturday, Feb. 8

9:30 a.m. Alfalfa feeding forum on dairy and swine.
10:00 a.m. Ladies' coffee.
12:30 p.m. Press, radio and TV luncheon.
2:00 p.m. Alfalfa feeding forum on beef and sheep.
8:00 p.m. Annual dinner-dance and floor show.

CONVENTION SPEAKERS

W. A. Donnelly, ADA president, opening address.
Joseph Chrisman, ADA executive vice president, "The Challenge of Change."
Jerry Sotola, livestock bureau, Armour & Co., "Research Will Point the Way."
James H. Burrell, James H. Burrell & Co., Inc., "The Growth and Development of an Industry."
Lloyd Arnold, Arnold-Thomas Seed Co., "IVP—What It Means to the Dehydrating Industry."
Dr. W. M. Beeson, Purdue University, Alfalfa Feeding Forum, beef.
Ralph McCall, Quaker Oats Co., feeding forum, beef.
W. D. Farr, Greeley, Colo., feeding forum, beef.
Dr. E. E. Bartley, Kansas State College, feeding forum, dairy.
Dr. E. H. Bechtel, General Mills, Inc., feeding forum, dairy.
Joe S. Willett, Colorado Springs, feeding forum, dairy.
Dr. Lorin E. Harris, Utah State University, feeding forum, sheep.
Dr. Bartley Cardon, Phoenix, Ariz., feeding forum, sheep.
Walter Nelson, Cheyenne, Wyo., feeding forum, sheep.
Dr. Robert H. Grummer, University of Wisconsin, feeding forum, swine.
Robert L. Vohs, Ames, Iowa, feeding forum, swine.
Darrell Wilson, Lawton, Iowa, feeding forum, swine.

Forum on Feeding Alfalfa to Highlight Annual Program

COLORADO SPRINGS, COLO. — A look at today's alfalfa feeding from the laboratory to the feed lot will be a highlight of the annual convention of the American Dehydrators Assn. at the Broadmoor Hotel Feb. 6-8.

To be presented as an "Alfalfa Feeding Forum" Feb. 8, the study will be presented by college research-

(Turn to FEEDING FORUM, page 36a)

From Quality Fields to Quality Feeds

ADA: Serving the Dehydrated Alfalfa Industry and the Feed Manufacturer

By Joseph Chrisman
Executive Vice President, American Dehydrators Assn.

To us who conduct the day by day operations of the American Dehydrators Assn. it seems imperative, as a primary function, that we strive to give the best and latest of information covering the many aspects of our industry to formula feed manufacturers, feeders and our own industry members.

This service of information, to be of greatest value to all concerned, should cover not only pertinent nutritional qualifications but also the growing of the plant, harvesting, processing, storing, availability, trading practices, specifications, etc.

To accomplish these aims successfully, it is incumbent upon us to seek this information constantly, to keep abreast of what is new in agronomy and soils as related to the alfalfa crop; be alert to new insect invasions and methods of combating them; know what is new in the processing of the crop all the way from field to feeder; learn how feed formulation is changing and the impact or possible effect these changes may have on dehydrated alfalfa usage.

At the same time we must keep as fully informed as possible on production, inventories and current prices.

What do we do to conform to this concept of our duty to our members and their customers? Perhaps the most obvious activity is that of advertising in the feed trade press and consumer type papers. In our ads we attempt to be more factual than glamorous. We try to quote recognized authorities in the field of nutrition and feeders of note rather than vaguely praising this, that or the other nutritive factor which dehydrated alfalfa possesses.

A less widely-publicized phase of this attempt to keep current information in front of producers, consumers and intermediates is the production in our office of single-page leaflets carrying nutritional information on alfalfa as related to various species. These leaflets carry the endorsement, as well as a picture, of leaders in the field of nutrition. They are widely distributed to the formula feed industry and to feeders of livestock by way of the members of the association.

In addition to these, we prepare and issue booklets in which are outlined the results of experimental feeding of animals where dehy is involved and others telling where, when and why dehydrated alfalfa can be used beneficially in the rations.

Another activity, which is now in its eighth year, is the publication of

(Turn to ADA SERVES, page 35a)

Research Unit, ADA Officials Plan Meetings

COLORADO SPRINGS, COLO. — The American Dehydrators Assn. research council will have a new presiding officer this year for the first time in seven years.

He is Dr. H. R. Bird, chairman of the department of poultry husbandry at the University of Wisconsin, who was elected chairman of the council last fall to replace Dr. L. E. Card.

Dr. Bird will preside at research council meetings to be held in connection with the ADA convention Feb. 6-8 in Colorado Springs.

Dr. Card resigned earlier to take a post as group leader of a team of agricultural scientists in north central India. He was serving his seventh year as chairman of the council. The council was formed in 1949.

The council has been the guiding hand in directing the spending of the association's research funds.

Council Members

Members of the council other than Dr. Bird are Dr. H. Ernest Bechtel, director, Larro Research Farm, General Mills, Inc., Indianola, Iowa; Dr. W. M. Beeson, professor of animal husbandry, Purdue University; Dr. Francis H. Bird, associate in feed research, Eastern States Farmers Exchange, West Springfield, Mass.; Dr. W. W. Cravens, director of research, McMillen Feed Mills, Decatur, Ind.; Roy C. Elrod, nutritionist, the W. J. Small Division, Archer-Daniels-Midland, Minneapolis; Dr. H. O. Graumann, research agronomist, U.S. Department of Agriculture, Beltsville, Md.; Dr. L. E. Hanson, head, department of animal husbandry, University of Minnesota; Harry J. Konen, feed consultant, Houston, Texas; H. C. Schaefer, manager, chemical laboratories, Ralston Purina Co., St. Louis; Dr. C. Ray Thompson, supervisor, alfalfa unit, U.S. Department of Agriculture, Beltsville, Md., and Dr. H. S. Wilgus, vice president, research director, Peter Hand Foundation, Chicago.

Another active group at the convention will be the board of directors, which has meetings scheduled Feb. 5. After new directors are elected Feb. 7, the new board will meet at 4 p.m. that day.

Board of Directors

Directors are J. A. Alexander, Grayson Alfalfa Dehydrating Mills, Sherman, Texas; Ralph Beermann, Beermann Bros. Dehydrating, Dakota City, Neb.; Charles P. Castle, Madera (Cal.) Milling Co.; J. J. Dillard, Nebraska Alfalfa Farms, Inc., Lexington, Neb.; W. A. Donnelly, National Alfalfa Dehydrating & Milling Co., Lawrence, Kansas; Loyd M. Faris, W. J. Small Division, Archer-Daniels-Midland Co., Kansas City; D. B. Hodel, Prairie Dehydrating Co., Roanoke, Ill.; R. P. Johnson, Elk

(Turn to MEETINGS, page 9a)

SPECIAL ALFALFA SECTION

"New Look" in the Alfalfa Industry

By Loyd Faris
Director of Sales, W. J. Small Co. Division
Archer-Daniels-Midland Co.

Loyd Faris

SPECIAL ALFALFA REPORT

The U.S. News & World Report recently labeled the past 10 years a "decade of miracles" and cited a long list of developments, culminating in the "Sputnik," that has made the years since 1946 "a span of sensational change, unmatched in history." One would have to agree that the technological progress of this period has exceeded anything previously known.

While the alfalfa dehydrating industry does not rank in technological complexity with such things as missiles and rockets or vaccines and hormones, nevertheless the processing of this commodity for use in formula feeds has made some giant strides in the past decade, too.

The industry has learned a great deal about growing alfalfa, about when and how it should be harvested for maximum quality, and has made important headway in doing these things mechanically at a much better rate of labor expenditure. It has also improved the dehydrating process, making it more productive, and, in particular in handling and storage content of the finished product, has made some valuable progress toward the goal of preserving the maximum nutritional content for the greatest possible length of time.

This advancement is by no means finished. I am sure that, could we look forward another decade, all would be astonished by the changes that further efforts of science and technology will bring about in the alfalfa industry, and some of these are already vaguely outlined by research work that has been done and now require only time to develop to the point of wide commercial application.

The story of these technological improvements has been written year by year over the past decade and is pretty well known to feed manufacturers. But some of the economic consequences of these changes, because they are less evident and less specific, are not so well recognized. For these developments have been paralleled by companion changes in business operations in the dehydrating industry. One cannot run a dehydrating business today in the manner of ten years ago.

Today the alfalfa industry is predominantly a blending process. It is true that many independent dehydrators do no blending, but the bulk of the industry's production now is a blended product and the largest part of the output of independent dehydrating plants ends up in a blend.

The growth of blending has been synchronized with the development of inert gas storage of alfalfa. The two go hand in hand.

Today, there is approximately 355,000 tons of gas storage capacity in the alfalfa industry and this is equivalent to nearly 35% of the recent annual production of slightly more than one million tons. Since a good deal of this storage is emptied and filled more than once a year, considerably more than 35% of the crop passes through these facilities.

Obviously, a dehydrator does not put up gas storage with the intention of leaving it empty. One could not justify the construction of these facilities if they were to be used only for two or three months in a year. Such storage must earn its keep by occupancy, and only then by enabling the owner to obtain more for his production through marketing a standardized product in a blending operation.

The upshot of the growth of storage and blending is the creating of a reserve supply of dehydrated alfalfa, a reserve which might properly be called "working capital" or "working stocks." As blending expands, the size of these "working stocks" must increase.

This tendency is evident in alfalfa production and storage statistics compiled by the U.S. Department of Agriculture. To trace this trend month by month would require too much space, and anyway, the trend is adequately illustrated by year-end carryover stocks. Annual production of dehydrated alfalfa and stocks on May 1 are shown in the following table (in tons):

DEHYDRATED ALFALFA

Year	Inventory on April 30	Prior years production	Inventory % of production
1947.....	17,200	580,500	3.0
1948.....	15,400	679,100	2.3
1949.....	38,500	732,200	5.3
1950.....	19,500	800,300	2.4
1951.....	20,400	907,500	2.3
1952.....	15,300	844,900	1.8
1953.....	66,600	1,020,100	6.5
1954.....	22,600	855,600	2.6
1955.....	83,600	1,063,700	7.9
1956.....	111,400	1,163,700	9.6
1957.....	36,300	959,900	3.8

The ups and downs of these year-end carryovers occasioned by crop variations may obscure the underlying fundamental drift toward larger working stocks. But the trend is there, and it is evident in the figures on the percentage of the prior year's production represented by the carryover.

Even in short crop years, this carryover has tended to increase, as will be seen by comparing the low production years of 1957, 1954, 1952 and 1951. The inclination is even more evident in years of large production. Compare the figures for the years 1953, 1955 and 1956.

Market students can expect to see supplies enlarge in this direction in the future, as blending operations expand. Volume of working stocks needed will be affected to some degree by the size and quality of crops from year to year. In years of low average quality production, carryovers may be larger than in average high quality years.

If the blender must use an inordinately high percentage of his top quality stocks to produce the required quantity of standard quality meal, it then becomes sound business for him to carry over the substandard remainder to average out with the super-quality material that comes with the first spring cuttings of the following year.

This has always been the case since blending operations were stimulated by the first preservative storage system—cold storage warehouses. It has grown more important because blending has expanded so much in the past few years.

The development of extensive gas storage means that there is less dehydrated alfalfa below standard protein and vitamin levels than there used to be. All of this is not due to improved techniques of harvesting and processing, although some of it is. It is also the result of a smaller loss in these qualities between production time and sale.

Inevitably, with less substandard meal available for blending with the

(Turn to NEW LOOK, page 9a)

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Reports on Current Alfalfa Research

EDITOR'S NOTE: A basic aim of the American Dehydrators Assn. is to learn more about the merits and new uses of dehydrated alfalfa and to foster research work which will bring the knowledge to light. An Alfalfa Research Council was formed some years ago to help guide the association in this work. It is composed of scientists from agricultural experiment stations and industry who advise the association on research, technical and scientific questions regarding dehydrated alfalfa. Under the guidance of the council, the ADA has been sponsoring research work at agricultural experiment stations with grants-in-aid. During the past year such work has been under way at several stations. Following is a summary of the work being done at several stations.

Washington

PROJECT: Dehydrated alfalfa as a supplement to low quality roughages for beef cows.

LEADER: I. A. Dyer.

PLACE: State College of Washington, Pullman.

Alfalfa is commonly used as a standard in measuring the quality of other roughages. Consequently, the value of lower quality roughages is expressed in relation to that of alfalfa. Such roughages may be lower in either energy, protein, minerals or vitamins than alfalfa. Low quality roughages perhaps never limit the performance as a result of a deficiency of all of these nutrients. Rather, the animals performance is restricted by the first limiting nutrient or the nutrient which is furthest from meeting the animals needs.

Considerable work has been done at Washington on the supplementary effects of alfalfa. In a recently completed experiment, dehydrated alfalfa was used as 60, 30 and 0% of the total ration. A concentrate mixture comprising 15% of the ration was used for each group. The remaining 25, 55 and 85% of the rations was wheat straw. Rations 2 and 3 (where wheat straw replaced alfalfa) were fortified with a trace mineral mixture simulating the mineral composition of alfalfa. Vitamin A was also added to groups 2 and 3. The comparative results are presented in table 1.

As might be expected, the total microbial activity in the rumen was considerably higher where dehydrated alfalfa was fed. This could have been due to either a higher amount of protein, more readily available carbohydrates or a combination of these two. Further work is being conducted on the effects of alfalfa on microbial activity in the rumen.

TABLE 1. Effects of Varying Levels of Dehydrated Alfalfa on Performance of Gestating-Lactating Cows

Comparisons	Lot numbers and treatments* 1: 60% dehy. alfalfa meal; 25% ground wheat straw; 15% concentrate	2: 30% dehy. alfalfa meal; 55% ground wheat straw; 15% concentrate	3: 0% alfalfa; 85% wheat straw; 15% concentrate
Average weight change during pregnancy, lb.	+197	+184	— 59
Average daily feed, lb.	25.5	29.5	15.1
Average daily feed per 100 lb. body weight	2.7	3.2	1.9
Change in liver carotenoids, mcg./g.	+ 1.4	— .1	— 4.1
Change in liver vitamin A, mcg./g.	+ 6.2	+41.0	— 2.4
Change in plasma carotenoids, mcg./100 ml.	+21.8	+80	—200
Change in plasma vitamin A, mcg./100 ml.	+54.2	— 2.7	— 8.4
No. normal calves	4	3	4
Average birth weight of calves, lb.	67	65	56
Average 2-week weight of calves	98	91	69

*All-pelleted rations.

California

PROJECT: Studies on the Value of Dehydrated Alfalfa as a Energy Source for Fattening Lambs.

LEADER: J. H. Meyer.

PLACE: University of California Agricultural Experiment Station, Davis, Cal.

The California research has been concerned with methods of improving the value of alfalfa as a source of energy. One important aspect is the stage of maturity at time of harvesting. Generally, the turning point for changes in energy value is when 10% of the stems have one or more blossoms. The value of the alfalfa for growing lambs remains constant after 10 to 30% bloom. However, crude protein and digestible protein content are highest at 10% bloom. Of course, pre-bloom or bud stage alfalfa is higher as a protein or energy source. A note of caution: Cutting alfalfa consistently in the bud stage lowers the productivity of the stand. Some areas on a short crop rotation interval might be able to produce high quality pre-bloom dehydrated alfalfa for specialty outlets. In general however, 10% bloom remains the proper stage at which to harvest.

Pelleted dehydrated alfalfa with a protein content of 22% or higher has shown promise as a range supplement to moderately grazed dry summer ranges. Sheep and cattle fed high protein alfalfa make gains approaching the gains of animals fed cottonseed meal. Blends of dehydrated alfalfa and a high protein supplement might be most satisfactory depending on how closely the range is grazed. Animals on heavily grazed-dry ranges need more protein.

Year in and year out the California station has been able to fatten lambs on straight pelleted alfalfa, dehydrated or sun-cured. No concentrate was added to these rations. However, dehydrated alfalfa did produce greater gains than sun-cured produced. In addition, dehydration of alfalfa has always allowed sheep to obtain greatest benefit from the high quality pre-bloom alfalfa.

Pelleted alfalfa has produced consistently greater gains by lambs than chopped alfalfa. This appears to be due to a greater daily consumption.

Again lignin has been the one constituent in alfalfa most useful in predicting lamb response. Not only is it inversely related to total digestible nutrient content, but lignin is of value in predicting future weight gains. Fortunately the crude fiber procedure, primarily in alfalfa, retains most of the lignin. Consquently, it is a more practical constituent for indication of the productive value of alfalfa. Lignin is a tedious and expensive analysis while crude fiber is a simpler analysis.

Nebraska

PROJECT: The Value of Dehydrated Alfalfa as a Protein Supplement (with and without stilbestrol) for Fattening Beef Cattle.

LEADERS: J. Matsushima, Associate Professor of Animal Husbandry; T. W. Dowe, Associate Professor of Animal Husbandry; and V. H. Arthaud, Assistant Professor of Animal Husbandry.

PLACE: University of Nebraska, Lincoln.

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ADA OFFICERS—Leading the American Dehydrators Assn. during the past year have been these three officers of the organization. Left to right: Joseph Chrisman, executive vice president; Eunice Hunt, secretary, and W. A. Donnelly, National Alfalfa Dehydrating & Milling Co., Lawrence, Kansas, president. Other officers are Robert Pharo, Keystone Dehydrators, Nazareth, Pa., first vice president, and Ralph Beermann, Beermann Bros., Dakota City, Neb., second vice president.

ated project is to determine the value of the following as a protein supplement when fed with or without stilbestrol in fattening beef cattle rations:

(a) Soybean oil meal, the level to be fed will be adjusted according to the additional needs in the ration;

(b) Dehydrated alfalfa meal, to furnish the same amount of protein as supplied by the quantity of soybean meal fed in (a);

(c) Combination of soybean oil meal and dehydrated alfalfa meal, approximately one-half the amount of protein supplied in (a) to be furnished from soybean oil meal and the other one-half from dehydrated alfalfa meal;

(d) Dehydrated alfalfa meal, to be fed at twice the level used in (b), admitting that the animals in this group would receive twice as much protein from the supplement.

Eighty yearling steers of "good to choice" quality were allotted into eight lots with ten animals per lot. Prior to this fattening test the animals were used in wintering tests and none of the animals had been fed stilbestrol nor treated with stilbestrol or similar material. During the wintering tests the calves had gained approximately 1.5 lb. per head daily.

All of the eight lots of cattle were full-fed ground shelled corn and about 5 lb. of prairie hay per head daily. The feeding test was started on May 27, 1957 and completed on Oct. 26, 1957, a period of 155 days.

The daily gains for each of the eight lots and the averages for the various treatments are shown in the following table.

Average Daily Gains (May 27, 1957, to Oct. 26, 1957)

Supplement	No Stilbestrol lb.	With Stilbestrol lb.	Average lb.
Soybean oil meal	1.86	2.51	2.19
1-X level Dehy. Alfalfa	2.55	2.61	2.58
2-X level Dehy. Alfalfa	2.23	2.64	2.44
Dehy. Alfalfa + S.O.M.	2.38	2.59	2.49
Average ...	2.26	2.59	2.43

Neither the total feed consumed by each group of animals nor the slaughter and carcass data have been summarized at this time. However, the following amounts of supplements were established at the beginning of this test for the various lots of cattle: 0.8 lb. per head daily for two lots that were to receive soybean oil meal; 2.5 lb. per head daily for two lots that were to receive the 1-X level of dehydrated alfalfa meal; 5 lb. per head daily for two lots that were to receive the 2-X level of dehydrated alfalfa; and 1.25 lb. dehydrated alfalfa meal plus .5 lb. soybean oil meal for the two lots that were to receive the combination. The four lots of steers that received stilbestrol were fed 10 mg. stilbestrol per head daily.

A complete summary of this report will appear in the 46th Annual Nebraska Cattle Feeders Day Report in April, 1958.

Russ Show Interest In Report on Dehy

MANHATTAN, KANSAS — The U.S. may be trailing Russia in certain areas of missile development, but this country's lead in producing dehydrated alfalfa is pronounced.

At least that is a logical conclusion that can be drawn from the publication by the USSR of the Kansas State College Bulletin 356 on Dehydrated Alfalfa.

Reproduced in Russian, complete with pictures, the bulletin recently came to the attention of Dr. R. W. Silker, Kansas State College, one of the authors of the bulletin which was put out several years ago. The authors of the bulletin were given credit in the Russian translation, but Dr. Silker was not sure that Kansas State College is mentioned—he was waiting for a more complete translation.

Incidentally, a revised copy of the bulletin will soon be released by Kansas State.

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Quality

ADA Members have always sought better ways to preserve the inherent qualities of their product through better harvesting methods, storage conditions and product additives. ADA Members have more than 375,000 tons of inert gas storage facilities.

Research

Through a continuing program the Research Council of ADA encourages and sponsors practical research for the production and use of dehydrated alfalfa.

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- Topeka—Kaw Dehydrating Co.
- Topeka—Progress Products Co.
- Topeka—Thompson Dehydrating Co.
- Wamego—R. W. Milling Co.

LOUISIANA
- Bossier City—Caplis Farm Dehydrating Co.

MICHIGAN
- Erie—Erie Alfalfa Mills, Inc.

MINNESOTA
- Bird Island—Rural Dehydrators
- Crookston—Red River Alfalfa Co.
- Olivia—Northern Drying Co.
- Swift—Landby Dehydrating Co.
- Worthington—Worthington Dehydrating Co.

MISSOURI
- Hannibal—Marion County Milling Co.
- Kansas City — W. J. Small, Div. Archer-Daniels-Midland Co.
- Wakenda—Reimer Dehydrating Plant

MONTANA
- Belgrade—Belgrade Alfalfa Mills

NEBRASKA
- Columbus—Al-Fa Meal Co.
- Cozad—Haymaker Feeds, Inc.
- Cozad—Nebraska Farm Products Co.
- Dakota City—Beermann Bros. Dehy.
- Fremont—Dehy. Alfalfa Mills, Inc.
- Fremont—Skyline Mills, Inc.
- Gothenburg—Gothenburg Feed Products Co.
- Glenvil—Glenvil Alfalfa Mill
- Grand Island—Cornhusker Farms
- Hastings—Morrison & Quirk
- Kearney—Kearney Alfalfa Mills
- Lexington—Central Alfalfa, Inc.
- Lexington—Nebraska Alfalfa Farms, Inc.
- Lexington—Platte Valley Products, Inc.
- Minden—Trico Feed Mills
- Oakland—Burt County Mills, Inc.
- Oakland—Dehydrated Products Co.
- Odessa—Shofstall Milling Co.
- Schuyler—F. J. Higgins Co.
- Scribner—Ebel Alfalfa Mills
- West Point—West Point Feed Products Co.
- Willow Island—Lemmon Mills
- Wisner—Albers Dehydrating Co.

NORTH CAROLINA
- Wake Forest—The Welles Co.

NORTH DAKOTA
- Minot—Big Sky Dehy., Inc.

OHIO
- Columbus—The Farm Bureau Coop. Assn., Inc.
- Graytown—Rohloff Bros., Inc.
- New Bremen—Bremco Alfalfa Mills, Inc.
- Oak Harbor—Hayward, Inc.
- Toledo—The A. B. Caple Co.
- Toledo—Toledo Alfalfa Mills

OKLAHOMA
- Shawnee—Waldo Alfalfa Mlg. Co.
- Muskogee—Choska Alfalfa Dehy. Mills
- Muskogee—Cole Grain Company

PENNSYLVANIA
- Allentown—Trexler Farms
- Nazareth—Keystone Dehydrators
- Nazareth—Sunny Slope Farms, Inc.

SOUTH DAKOTA
- Vermillion—Sioux Alfalfa Meal Co.

TENNESSEE
- Memphis—Nickey-Eason Plantations, Inc.
- Tiptonville—Reelfoot Alfalfa Mill

TEXAS
- Garwood—Garwood Dehydrating Co.
- Hearne—Brazos Valley Dehydrating Co.
- Hearne—Plantation Dehydrating Co.
- Raymondville—Evergreen Farms, Inc.
- Sugarland—Sugarland Industries
- Trinidad—Cedar Creek Dehydrating Co.
- Vernon—Greenbelt Dehydrating Co.

WASHINGTON
- Burlington—Chris Knutzen & Co.
- Mount Vernon—Pierson Dehydrating Co.
- Mount Vernon—Skagit Dehydrators
- Snohomish—Floyd McKennon
- Sunnyside—Roza Dehydrating Co.

WISCONSIN
- Fountain City—Greshik Dehydrating Mill
- Oakfield—Mammoth Springs Canning Co.

WYOMING
- Casper—Natrona Feed Products Co.

CANADA
- Chilliwack, B.C.—Springbank Dehydration, Ltd.
- Vancouver, B.C.—Buckerfield's, Ltd.

MEXICO
- Mexico, D.F.—Alfalfas Concentradas, S.A.

ITALY
- Rome—Federazione Italiana Dei Consorzi Agrari

FRANCE
- Eure—Jean Renault, Herqueville par Saint Pierre

Price Variation in the Alfalfa Dehydrating Industry

By Donald L. Walker

EDITOR'S NOTE: Mr. Walker, formerly on the staff of the University of Idaho, points out in the accompanying article that dehydrated alfalfa has great price variations over the year for various reasons. To understand the reasons, he states that it is necessary to know something of the characteristics of the supplies and demand for both raw material and finished product markets. His article explains these characteristics and explains their effect on the alfalfa dehydrating industry.

* *

The insecurity and uncertainty of business survival resulting from seasonal price variation of both raw material and the finished product are a problem that has plagued the alfalfa dehydrating industry since its very beginning.

The problem is particularly acute in the finished product market where seasonal price variations are extremely large. U.S. Department of Agriculture statistics show alfalfa meal prices frequently reach highs of $60 per ton during the winter

SPECIAL ALFALFA REPORT

months and lows of $35 per ton during the summer months.

Because of this problem, an understanding of the characteristics of supplies and demands, for both raw material and finished product markets, is extremely important to management in the alfalfa dehydrating and related industries.

The terms supply and demand are often confusing because they are not accurately defined for the specific use to which they have been put. There are three forms of supply and demand which must be considered as they apply to a specific product within a specific geographic area and a specific instant or period of time.

First, there is a "potential" supply and demand. For example, the potential alfalfa supply for the U.S. includes all of the alfalfa that will be produced or imported for any given season.

For any instant of time and a given area, the potential supplies and demands for a product usually are not known precisely. Businessmen, therefore, attempt to guess or "anticipate" the magnitude of the potential supply and demand. Thus the second form appears. Businessmen also anticipate the "final" supply and demand—the third form—expressed in the market by the prices paid or received and the quantities taken or sold for a given period of time and area.

This article will first review the facts that are known about each form of supply and demand for both green alfalfa (the raw material) and alfalfa meal (the finished product). Supply and demand functions, based on the known facts, are constructed to illustrate how the combined forces of each form of supply and demand have caused prices of green alfalfa and alfalfa meal to vary as they have in the past. Finally, future trends evident in the dehydrating industry are discussed in view of their effect on price variation.

Price Variation in the Green Alfalfa Market: The potential alfalfa supply for the nation is about 55 million tons per year (1). The potential demand for green alfalfa by dehydrators is slightly over 1 million tons per year, dry basis—about 2% of the total U.S. alfalfa production (2).

The potential alfalfa supply and demand relationships vary from season to season but they are relatively fixed interseasonally for farmers and dehydrating firms, both as individuals and groups. A few factors that give stability to potential alfalfa supplies are: Alfalfa is usually seeded for an extended period of time—2 to 5 years; alfalfa is a relatively fixed portion of most crop rotations, and sizable amounts of capital are expended to establish alfalfa stands. Also, the supply area for an individual dehydrator is definitely localized.

The demand potential of alfalfa dehydrating firms and the dehydrating industry are limited interseasonally by the number and physical capacity of dehydrating units which exist for a given season. Several years of operation are required to recover the initial costs of a dehydrating unit. Dehydrators find producing at or near full capacity desirable in order to keep unit production costs low.

The limited supply area and the desirability of producing at or near capacity causes dehydrating firms to have strong economic incentives to meet all competition, price-wise, for green alfalfa.

As a result, the final quantities taken of green alfalfa tend to stand rigidly at or near dehydrator production capacity with very little relationship to price. This final demand situation is illustrated in figure 1 by a vertical or nearly vertical demand curve up to prohibitively high price levels. At a maximum price level, which can only be determined by individual firms, the final demand curve bends to the left becoming horizontal and discontinuing at the point production is stopped.*

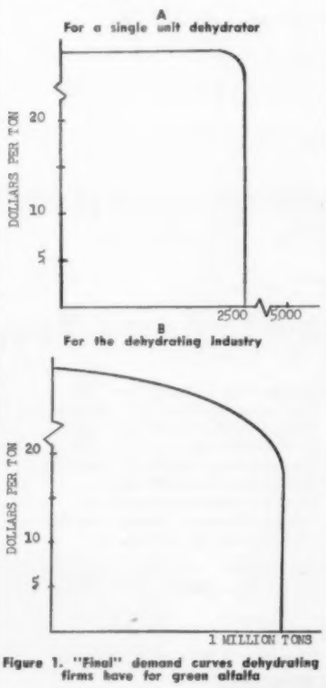

Figure 1. "Final" demand curves dehydrating firms have for green alfalfa

For individual firms, the bend to the left is very sharp. For the industry, the bend is more gradual as not all firms operate on the safe profit margins. "A" of figure 1 illustrates the final demand curve of a firm with a single unit dehydrator and "B" illustrates that of the dehydrating industry.

*By economic rationale, production must be stopped when the margin of profit will not pay the cash costs.

Supplies Flexible

Unlike the final demand of dehydrators for green alfalfa, the final supplies of alfalfa finally offered in the many local markets over the nation are relatively flexible. Several marketing alternatives exist for alfalfa. It may be grown for cash sale, either green or cured and baled, or for livestock feed on the ranch where it was grown. The price level is governed largely by anticipated seasonal supply with respect to the anticipated seasonal demands resulting from numbers of and prices prevailing for livestock in the nation.

When potential alfalfa supplies are thought to be abundant with respect to anticipated demands in an area, sellers develop a pessimistic outlook. This causes alfalfa stocks to be offered at low prices and large changes in quantities offered in the market have very little effect on the price level. The low relatively flat function shown in figure 2 illustrates the final alfalfa supply expressed in the market when supplies are thought to be abundant.

When potential alfalfa supplies are thought to be short, the outlook becomes brighter, prices accepted in the market rise to higher levels and become much more sensitive to changes in the quantities offered for sale. The final supply expressed in the market acting in this manner is illustrated in figure 2 by the higher more vertical supply function.

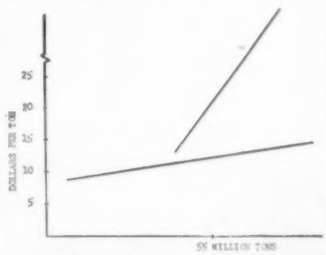

Figure 2. Final alfalfa supply curves for the U.S.

The same analogy is generally applicable to local markets. However, there are local communities that grow alfalfa for some special markets, such as alfalfa dehydrators. This may be due to custom, geographic isolation, business arrangements or a number of other reasons. The final alfalfa supply is separated from the feed and livestock situations and would be relatively fixed for any given season under such special conditions.

Price Stability

When the rigidly vertical demand curve of dehydrators is combined with the ever shifting supply curve of alfalfa producers as shown in figure 3, price is seen to be relatively stable at the low price levels. At the higher price levels, price becomes very unstable because a small movement of quantities offered or quantities demanded will cause a large price change. However, since dehydrators demand such a small portion of the potential supply of the U.S., they have very little influence on the general price level of alfalfa.

It is in the local alfalfa markets that dehydrators are particularly subject to extreme price variations as a result of this unstable situation—especially if dehydrators become so numerous in a local area that they compete with one another for green alfalfa as well as with other local demands.

Donald L. Walker

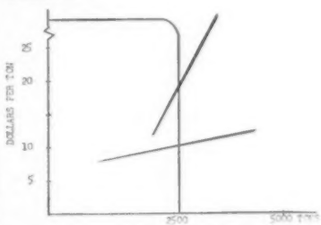

Figure 3. Final alfalfa supply curve combined with dehydrator demand curve for green alfalfa

Price Variation in the Alfalfa Meal Market: The potential demand for alfalfa meal is tied closely to the demand situation of the mixed feed industry since alfalfa meal is a very important ingredient in most mixed feeds. The disappearance of mixed feeds is quite uniform throughout the year—evidence that the potential demand for alfalfa meal is also uniform through the year. (3)

However, the final demand expressed in the market by feed manufacturers has considerable seasonal variation. U.S. Department of Agriculture statistics show disappearance of alfalfa meal to vary from summer highs of approximately 140,000 tons per month to winter lows of approximately 60,000 tons per month.

How can this wide fluctuation of alfalfa meal disappearance be explained? Apparently, many feed manufacturers find buying alfalfa meal supplies at low summer prices and assuming part of the storage function economically advantageous. Results of research done by the USDA offer some support to this observation. Feed manufacturers, as a group, were found to store more alfalfa meal than any other ingredient they use. (4)

Feed manufacturers are in a very independent position with respect to the alfalfa meal market during the summer months. They are well aware of the large stocks available and know they can buy heavily without seriously affecting the price.

Because of this attitude, the final demand expressed in the market is characterized by low prices that are quite insensitive to changes in quantities of alfalfa meal taken. The low horizontal portion of the demand curve in figure 4 illustrates the final demand for alfalfa meal during the summer months.

Those feed manufacturers who do not have extensive storage supplies lose the independence enjoyed during the summer. Alfalfa meal must be purchased to meet the needs of mixed feed orders by this group. As a result, individual feed manufacturers reluctantly begin to compete, price wise, with one another for alfalfa meal—especially if supplies are known or appear to be short. The alfalfa meal price, therefore, moves to higher levels and becomes much more sensi-

tive to changes in the aggregate demands of feed manufacturers.

Figuring Maximum Price

But what keeps the price from rising indefinitely under these conditions? Each feed manufacturer must decide what maximum price he will pay. The prices received for mixed feeds and the prices of substitutes for alfalfa meal are two important factors in this decision.

When feed manufacturers begin to adopt substitutes or reduce the content of alfalfa meal in their mixes, the price will become less sensitive to changes in quantities demanded. Thus the quantity demanded will taper off rapidly as the price moves to very high levels.

The upper portion of the demand function, shown in figure 4, characterizes the final demand for alfalfa meal as competition becomes increasingly keener for the decreasing alfalfa meal supplies. The central portion of the function illustrates conditions at medium price levels. The portion of the curve bending to the left illustrates the effect of adopting substitutes for alfalfa meal at very high price levels. The function discontinues at the point purchases are stopped.

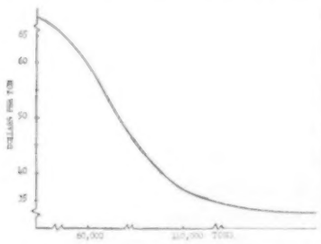

Figure 4. The final demand curve for alfalfa meal

The potential supply of alfalfa meal is about 1 million tons per year. Most of this supply is produced during the summer months when the main supplies of green alfalfa are available. U.S. Department of Agriculture statistics show production of dehydrated alfalfa meal to reach highs of approximately 200,000 tons per month during the summer and lows of 5,000 tons per month during the winter.

The potential supply during the summer months is much greater than the feed manufacturers can use and greater than the industry's own ability to store. Consequently, dehydrating firms become severe competitors with one another for the alfalfa meal market and the outlook for the immediate future is tempered with an air of pessimism.

As a result, alfalfa meal is offered in the market at low prices that are insensitive to changes in quantities offered. The low nearly horizontal supply curve, shown in figure 5, typifies final supply relationship existing between price and quantities of alfalfa meal offered for sale during the summer production season.

The high nearly vertical supply curve in figure 5 illustrates the final supply expressed in the market as winter approaches. Most production stops, leaving the stored alfalfa meal as the main supply potential. As this supply potential is reduced, competition between dehydrators, as sellers, tends to shift to competition between feed manufacturers, as buyers.

Prices Move Higher

Evidence of this shift causes outlook to brighten for dehydrators, prices of alfalfa meal move higher and become more sensitive to changes in the amounts offered in the market. The extent that the final supply curve moves to the left and becomes more vertical is tempered by the fear or uncertainty that unmarketed alfalfa may still be on hand at the beginning of a new season.

This consideration is particularly important in the alfalfa dehydrating industry because of the perishability of alfalfa meal. The full effect of the

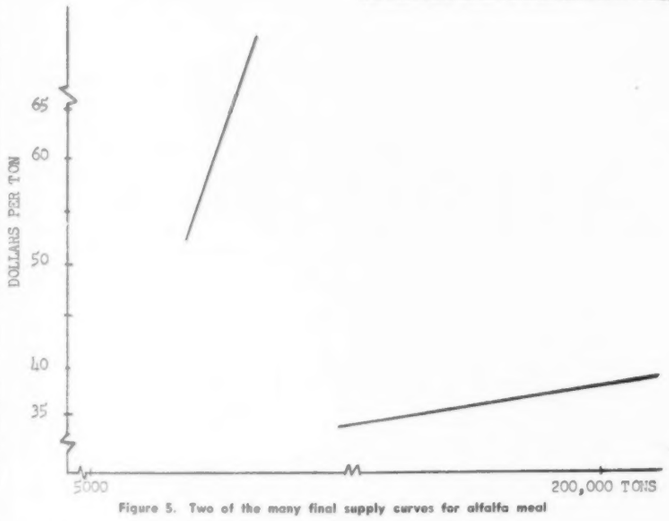

Figure 5. Two of the many final supply curves for alfalfa meal

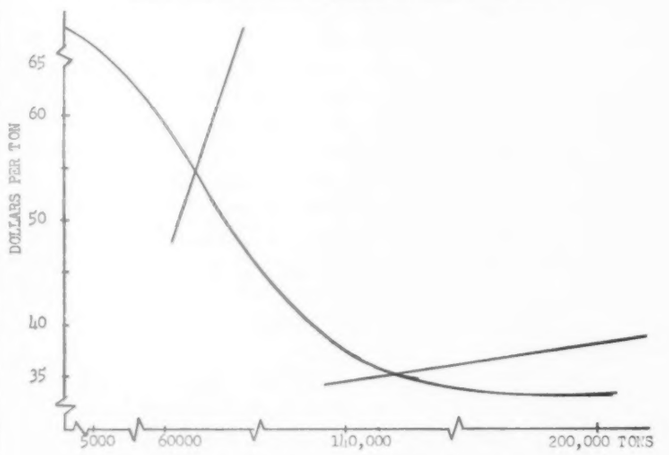

Figure 6. Final alfalfa meal supply and demand curves combined

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Alfalfa Nutrition

Dehydrated Alfalfa in Dairy Cattle Rations

IN A report published by the Journal of Dairy Science, Warren and others brought out that both average daily milk production and average daily Fat Corrected Milk increased with each increment of dehydrated alfalfa pellets added to the ration. The fat percentage in the milk did not appear to be affected. The adjusted FCM increased 2.7 pounds per cow per day for every ½ pound of dehydrated alfalfa pellets added per 100 pounds of live weight.

The report further stated that the adjusted average daily yield on the basal ration alone during the 100-day comparison period was 76.6 per cent of the average yield during the 30-day standardizing period. When ½ pound of pelleted dehydrated alfalfa was added per 100 pounds of live weight, the percentage was 85.2; for the 1.0 pound level, 96.4; and for the 1.5 pound level, 99.4. The carotenoid concentration of the milk increased almost directly with the increased levels of dehydrated alfalfa feed There was a gain in body weight for each ½ pound addition of pellets per 100 pounds of body weight.

H. D. Eaton and co-workers reported that artificially dehydrated and pelleted alfalfa can be added to lactating dairy cattle rations with resulting increases in total nutritive intake accompanied by increases in milk yields. Experimental evidence to date indicates that for each addition to the basal rations of 0.5 pound of pelleted alfalfa from 0.0 to 1.5 pound per 100 pounds of live weight, total digestible nutrient increased and it was accompanied by an increase from 0.9 to 2.7 pounds of 4% fat corrected milk per day.

From the foregoing, it is evident that artificially dehydrated alfalfa plays a vital role in the ration of dairy cattle. In developing your dairy cattle feed formulas be sure to include adequate amounts of National Dehydrated Alfalfa to insure top dairy feed performance.

"Lactation Response to Artificially Dehydrated and Pelleted Alfalfa Added to a Ration of Timothy-Grass Mixed Hay and Grain."—*F. S. Warren, R. E. Johnson, Cecelia M. Dembiczak and H. D. Eaton, Animal Industries Department, Storrs Agricultural Experiment Station; Geoffrey Beall, Statistical Laboratory, University of Connecticut, and L. A. Moore, Dairy Husbandry Research Branch, USDA, Washington, D.C. Published in Vol. XXXVII, No. 5, 1954, Journal of Dairy Science.*

"Use of Artificially Dehydrated Alfalfa in Dairy Cattle Rations"—*H. D. Eaton, R. E. Johnson and L. A. Moore, Animal Industries Department, Storrs Agricultural Experiment Station, Storrs, Conn., and Nutrition and Physiology Division, Agricultural Research Service, U.S. Department of Agriculture, Beltsville, Md. Published in Feedstuffs, Jan. 22, 1955.*

4th OF A SERIES featuring the importance of Dehydrated Alfalfa in Poultry and Livestock rations.

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final supplies and demands expressed in the alfalfa meal market on price is apparent when the functions are put together as shown in figure 6.

The low horizontal supply and demand curves indicate that alfalfa meal price is relatively stable at the very low levels as prices exist during the summer months. The steepness of the supply and demand curves at the higher price levels indicates very unstable prices. For the alfalfa meal price to become more stable during the winter months either the supply or demand curve must assume a more horizontal position. In other words, price must become much less sensitive to changes in either quantities demanded or supplied.

Current evidence indicates that the dehydrating industry will gradually obtain a fairly horizontal supply curve. The industry is working very hard to build additional storage facilities and develop chemical means of stabilizing vitamin A. Also, mergers of various forms are occurring within the industry which in effect are reducing the number of firms.

As the number of firms decrease, alfalfa meal marketing will be more effectively controlled. Each of these actions tends to strengthen the independence of the dehydrating industry in the market in the summer months and stabilize the alfalfa meal price during the winter months.

However, as these things occur, competition between firms will become keener causing profit margins to become narrower. Emphasis will shift to reducing production and marketing costs, improving quality, establishing brand names, improving sales techniques, etc.

♥ ♥

REFERENCES CITED

1. 1954 Census (Total Alfalfa Production for U.S.).
2. Dehydrated Alfalfa Production ADA, 11-7-57.
3. U.S. Department of Agriculture, The Mixed Feeds Industry, Marketing Research Report, No. 38, May, 1953.
4. Ibid

MEETINGS

(Continued from page 1a)

Valley Alfalfa Mills, Independence, Kansas; Floyd McKennon, Snohomish, Wash.; Eric Mengering, Farm Bureau Cooperative Assn., Columbus, Ohio; J. B. Merryfield, Abilene (Kansas) Alfalfa Mill; Kenneth Morrison, Morrison & Quirk, Hastings, Neb.; Robert Pharo, Keystone Dehydrators, Nazareth, Pa.; Charlie R. Reyher, Reyher Milling Co., McClave, Colo.; C. E. Stower, Worthington (Minn.) Dehydrating Co.

Presiding at the meetings of the board of directors will be W. A. Donnelly, association head. Joseph Chrisman, executive vice president of the ADA, will report on activities of the association office.

The directors and the research council will meet at luncheon Feb. 6.

NEW LOOK

(Continued from page 2a)

super-quality material, a real scarcity of lower quality can develop and has occurred at times in the past couple of years. Thus, years of high quality production do not reduce the need for working stocks; they may even intensify such need.

In short, the alfalfa industry is moving from a phase in which production was wholly determined by nature's vagaries from year to year into a phase in which production is being regulated to a greater extent by plan and by economics. Such a condition requires the maintenance of substantial working stocks all the time. These working stocks do not represent an available supply for the market. They are not a shelf-stock ready for sale, but more truly represent "raw materials in process," since their quality may be either higher or lower than the industry's standard product.

In calculating supply potentials, the alfalfa market student henceforth must recognize the existence in the total stocks figure of a portion which is not immediately saleable or intended for sale.

The parallel effect of this situation is a tendency to flatten price peaks and valleys. The dehydrating industry is moving fast in the direction of a year-around availability situation, in which there will be no suicidal summer price valleys nor sales-curbing winter price peaks.

Seasonal trends may never be wholly eliminated, but they will be greatly modified and the alfalfa industry of the future will be able to obtain a summer price that will reflect a reasonable processing margin and a winter price which will reflect, not a short supply premium, but a modest carrying charge to cover the expenses of storage for the buyer.

BUILDS ADDITION

WARRENTON, MO. — Thornton's Feed Store, Truesdale, has erected an addition.

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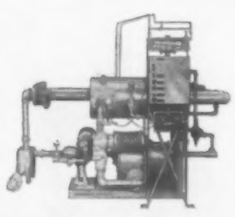
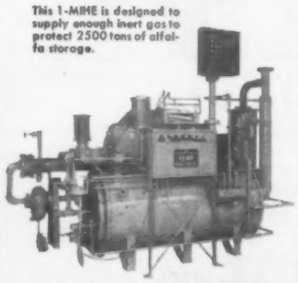

This 1-MINE is designed to supply enough inert gas to protect 2500 tons of alfalfa storage.


This 8-MINE protects up to 20,000 tons of alfalfa. One of 25 Kemp Inert Gas Generator models.

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Dehydrated Alfalfa in Laying Rations

By H. C. Schaefer

Manager, Chemical Laboratories, Ralston Purina Co.

H. C. Schaefer

SPECIAL ALFALFA REPORT

The experimental work with dehydrated alfalfa in laying rations has been very limited, and in recent years there have been no reports. This is probably due to the great interest in breeder and starting rations where nutrient requirements are more critical and results more spectacular.

Some very dramatic results were observed with suncured alfalfa in California in the curing and prevention of nutritional roup. It is still recognized that alfalfa meal, and especially dehydrated alfalfa, is an economical and convenient source of vitamin A activity in areas where the carbohydrate source of the ration is other than yellow corn or where milo grains and barley are a more economical source of energy than corn.

When thinking of the use of dehydrated alfalfa in laying rations as a source of nutrients, the nutrient requirements of the laying hen should be considered.

Protein: The protein requirement of laying hens is approximately 15% of the total ration. Since dehydrated alfalfa contains approximately 17% protein of good biological value, it is an economical source of protein.

Vitamin A Activity: The vitamin A activity requirement of laying hens is approximately 2,000 U.S.P. units per pound and can be supplied as vitamin A or pro-vitamin A (beta-carotene). Since good quality dehydrated alfalfa contains 100,000 units of vitamin A activity per pound, the vitamin A requirements of an all-mash laying ration can be supplied by 2% of dehydrated alfalfa or 4% in the laying mash to be fed with grain. At 3% in the all-mash ration, there will be a 50% factor of safety for carotene loss or variation.

Riboflavin: Laying hens require about 1 mg. per lb. of total ration while dehydrated alfalfa contains 7.3 mg. of riboflavin per lb. It is one of the most potent natural sources of riboflavin. Before synthetic riboflavin became commercially available, dehydrated alfalfa was the most economical source of this vitamin for breeder and starting rations. Dehydrated alfalfa is used for purposes other than as a source of riboflavin but this is a plus value from this fine ingredient.

Pantothenic Acid: The recommended level of pantothenic acid of the total ration of laying hens is 2.1 mg. per lb. Similarly as with riboflavin, dehydrated alfalfa is an abundant source of pantothenic acid with 12.5 mg. of pantothenic acid per lb.

Pigment or Color Control of Egg Yolks: As a source of nutrients dehydrated alfalfa supplies protein, vitamin A activity, riboflavin and pantothenic acid economically, but it has a value other than nutrition in commercial laying rations which could become a very important factor in the future for commercial egg production. It is possible that the xanthophyll content of dehydrated alfalfa can be more important for the control of egg yolk color than the above mentioned nutrients for nutrition.

Commercial Egg Production

In the past, the major portion of the commercial eggs was produced on midwestern farms by small flocks primarily as a source of grocery money for the farmer's wife. These eggs were produced by hens roaming over the farmstead—which included the barnyard, the manure pile, garden, and grain and corn fields. The ration consisted primarily of grain from the granary or corn crib plus some laying mash at times.

The eggs produced under this system varied greatly in quality from fresh farm eggs to bad-smelling, horrible-tasting and unappetizing-looking eggs. Such eggs were acceptable and tolerated during the era of the small independent corner grocery store, but the gleaming, modern, streamlined, chain-owned and operated supermarket developed a demand for a large volume of uniform, high-quality eggs which cannot be satisfied by the former production methods.

The quality of former eggs varied within a range in shell color from dark cherry brown to a chalk white. The shell quality ranged from hard, uniform shells to paper-thin shells, and many shells were cracked during transit.

When the eggs were broken for baking or cooking, the housewife would find deep orange-colored and pale lemon-colored yolks in the same purchase. She would observe a difference in the consistency of the albumen or whites which could range from a firm jelly-like white to a watery thin liquid white. Along with these distasteful physical qualities, she frequently found blood spots and meat particles and an offensive odor.

Such variations and discrepancies were tolerated and understood by housewives with farm background, but the vast majority of egg buying homemakers of today who patronize the supermarket for their egg purchases do not understand egg production and are not tolerant of variable quality merchandise.

This has created a market for a large volume of eggs of uniform shell color, shell texture and consistent yolk color and interior quality. Such a demand can only be met by large producing units where the hens are all fed the same complete ration under carefully controlled sanitary conditions.

The eggs must be gathered frequently, refrigerated and marketed shortly after production. This commercial system of production will not only satisfy and increase the consumption of eggs in the home, but it will also be a great help to the egg breakers for cake and ice cream mixes.

Every consumer of eggs is concerned with uniform egg yolk quality, and this can be most economically and effectively controlled through the ration. The xanthophyll in dehydrated alfalfa meal is a very effective and economical ingredient for this purpose.

NEW MANAGER NAMED

LE CENTER, MINN. — Jasper Shaver was elected manager of the Le Center Alfalfa Plant Dehydrating Co. here recently to succeed E. W. Timm, manager since 1953. Mr. Shaver had served as sales manager.

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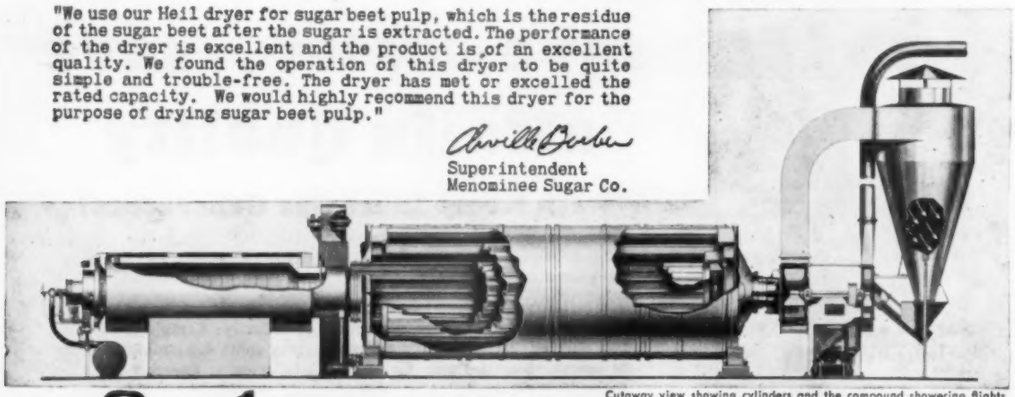
Orville Barber
Superintendent
Menominee Sugar Co.



Cutaway view showing cylinders and the compound showering flights.

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- Automatically establishing correct exposure time for each particle, based upon weight due to moisture content.
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Officers Elected for Oregon Fryer Group

PORTLAND, ORE. — The Oregon Fryer Commission held its organization meeting recently and elected B. J. Rogers, Springfield, chairman, and W. H. Fleming, Grants Pass, secretary. Mr. Rogers is field specialist for the Willis H. Small Feed Co., Eugene.

The commission set March 1, 1958, as the effective date for assessment of broiler producers to finance its program of advertising, promotion and marketing research. The tax was set at .17¢ per lb. live weight on all birds sold in Oregon at the first point of sale. The tax will be collected monthly, payable on or before the 15th day of the month following sale. It is estimated the tax will collect $39,000 annually.

Fryers will be considered all chickens under six months of age and marketed for human consumption as fryers, broilers or fryer-roasters. The commission will advise all persons who buy live chickens for handling or processing to register with the commission by Feb. 13.

Mr. Rogers named a committee consisting of Harold Bridgmon, Portland; Dave St. John, Gervais, and Dal Ferry, Salem, to investigate the desirability of creating the position of executive secretary-manager and to select possible candidates for this job.

The Oregon Fryer Commission was organized recently by a majority of fryer producers under the Oregon law which permits organization of commodity groups. Several such committees are now operating under this law. The best known are the Oregon Wheat Commission and the Fescue Commission.

FEED FIRM SOLD

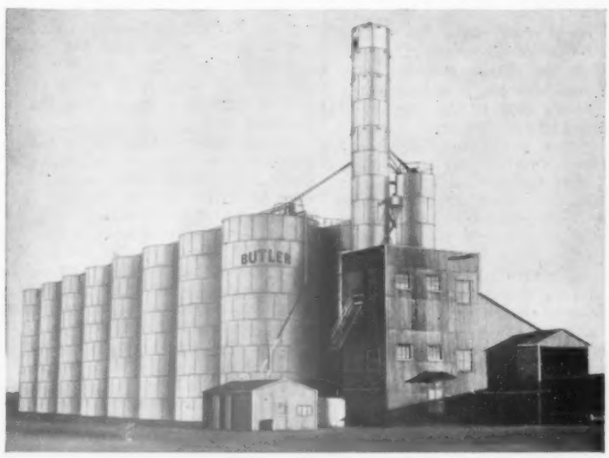
LOWVILLE, N.Y. — The Lowville Feed & Grain Co. has been purchased by Allen Bush and John E. Bush, brothers. The mill site has been transferred from the estate of the late Helmuth E. Kuehn. The Bush brothers left Louis Bush & Sons, Inc., to take over the new business, leaving two other brothers, Nelson and Louis C. Bush, in charge of that company.

Dannen Leases Two Elevators in Kansas

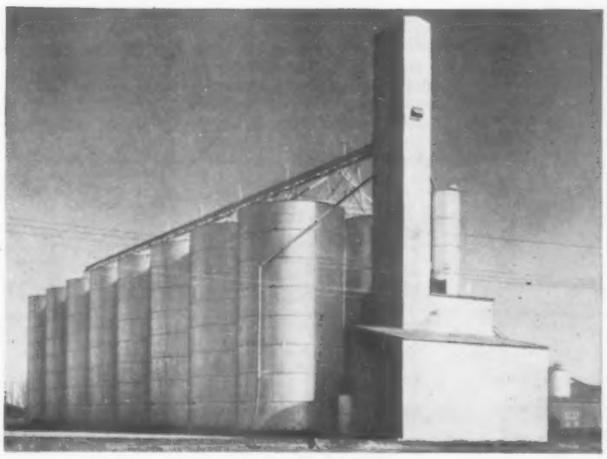
ST. JOSEPH, MO.—Leasing of an elevator at Independence, Kansas, and another at Oswego, Kansas, has been announced by Dwight L. Dannen, president of Dannen Mills. The firm now operates 25 country stations.

Roy Weed, who has been at the firm's country station at Yale, Okla., will manage the Independence station and supervise the Oswego elevator. Leon Fisher, present manager, will continue to operate the Oswego installation. Both locations have feed warehouses as well as feed mixing equipment and hammermills.

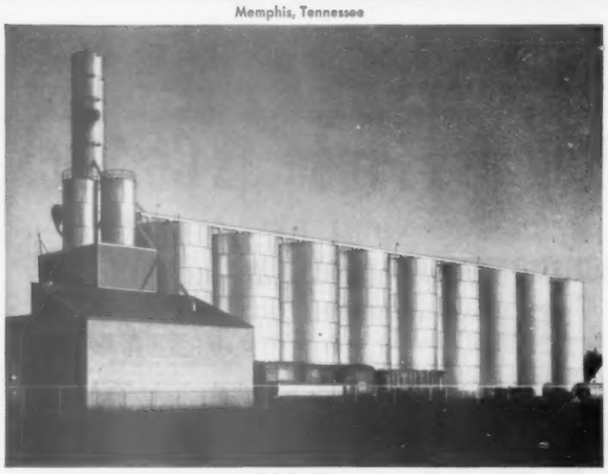
STORING DEHYDRATED ALFALFA IS DIFFERENT...



Memphis, Tennessee



Garden City, Kansas



Toledo, Ohio

Butler solves special storage requirements at three new plants for National Alfalfa

Ordinary storage won't do for alfalfa pellets. To prevent the loss of Vitamin A and protein in dehydrated alfalfa, the pellets must be stored in an inert gas atmosphere. This means the storage structure must not only protect the alfalfa from weather, moisture and pests, but also must be so tightly constructed that it can maintain gas under pressure.

Butler bolted steel tanks have solved this problem to the complete satisfaction of National Alfalfa Dehydrating and Milling Company. After Butler built the first dehydrated alfalfa plant for National in Garden City, Kansas, the company was so pleased with the plant's tight construction and economy that Butler was asked to build two almost exact duplicates—one in Memphis, Tenn. and the other in Toledo, Ohio.

Perhaps you, too, can benefit from Butler's unequalled experience in storage facilities for dehydrated alfalfa—and from the weather-tight safety Butler builds into every tank. Next time you need storage for grain, feed or ingredients, profit from Butler's quality and localized construction service. Contact the Butler contractor nearest you. He's listed on the opposite page.

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The Value of Alfalfa for Swine Feeding

By Dr. T. J. Cunha

Head, Department of Animal Husbandry and Nutrition
University of Florida

Dr. T. J. Cunha

EDITOR'S NOTE: The author of the accompanying article, Dr. T. J. Cunha, also is the author of a recently published book, entitled "Swine Feeding and Nutrition." Dr. Cunha points out that more detailed information on the value of alfalfa for the pig is included in the new book.

* *

The use of high-quality dehydrated alfalfa meal with swine fed in dry lot is a means of substituting for pasture. It is the closest substitute for pasture available and thus insures the pig of getting most of the nutritional advantages of pasture.

The reason the writer didn't say dehydrated alfalfa meal can substitute entirely for pasture is because it is possible that some factor or factors may be lost in the drying process. Proof along this line is the finding in Utah studies (1) that fresh green alfalfa in the field supplied some factor or factors for the pig which were destroyed in the process of sun-drying the alfalfa into hay. It would be interesting to know whether this is some known factor now or whether it is still some unidentified factor or factors.

Since the trend is for fattening more hogs in dry lot instead of on pasture, more attention will need to be paid to making sure that the dry-lot rations are properly formulated and fortified. It is well known that high-quality, lush, green pasture supplies many vitamins, minerals and proteins as well as unidentified factors.

Thus, the use of pasture has protected and covered up many nutritional inadequacies of the feeder who was not using well-balanced rations. However, this protection no longer holds when he changes his program to that of dry-lot feeding. Then, the pig obtains only whatever nutrients are provided in the feed fed on the concrete floor. Thus, rations fed in dry lot will need to be more nutritionally adequate than those fed on pasture.

In my opinion, this means that a pasture substitute, or high-quality, leafy, green alfalfa meal needs to be used in dry-lot rations. We still need much research to determine the beneficial effects of alfalfa for swine fed in dry lot. These studies are needed with up-to-date rations which are now being used and which are properly fortified with vitamins, minerals, amino acids and antibiotics.

Moreover, this research needs to include long-term studies in which the value of alfalfa is studied continuously from early weaning through reproduction and lactation. Only then can one determine if alfalfa contains some unidentified nutrients which are necessary in a well balanced swine feeding program.

There have been many studies which indicate that alfalfa contains some unidentified factor(s). There have also been studies which showed that alfalfa meal contained some unidentified factor or factors which are of value for pigs during growth and which influenced their ability to conceive, reproduce, and lactate many months later. (2, 3, 4, 5) The fact that this factor or factors had an effect on reproduction many months later is one reason why alfalfa needs to be studied over a long period of time in order to properly evaluate its place in a swine feeding program.

Table 1 shows some suggested ranges for the use of alfalfa in swine rations. These levels may vary somewhat, depending on the circumstances involved. However, they are given as a guide in determining what levels to use.

The levels of alfalfa suggested in Table 1 are very conservative levels. There are many circumstances where higher levels can and are being used. There are many instances where very high levels of alfalfa have been fed experimentally with good results. Recent studies at the Nevada Station are a good example of such research. Table 2 gives information on the results obtained in the Nevada tests. (6, 7, 8)

The data from the Nevada Station shown in Table 2 certainly indicate that alfalfa can be fed to growing-fattening pigs at levels higher than many would think feasible. It is interesting to observe that rate of gain and the feed required per pound of gain were not affected too much in these tests until quite high levels of alfalfa were included in the ration. In areas where alfalfa is readily available and where one is not in a hurry to put on rapid gains, there would be a place for using higher levels of alfalfa. In areas where grain is in short supply one could also use more alfalfa in place of corn as was done in the Nevada studies.

Leaner Hogs Produced

The Nevada workers also found that the alfalfa-fed hogs were consistently leaner but had a lower dressing percentage. The hogs fed high levels of alfalfa produced more ham, loin, and shoulder and had less belly and back fat. These data are shown in Table 3. The data show that as the pigs ate higher levels of alfalfa their digestive tracts enlarged to accommodate the increased fiber and bulk. The Nevada workers found that pelleting the alfalfa-grain mix

TABLE 1. Suggested Levels of Dehydrated Alfalfa in Swine Rations

Type of ration	Suggested levels to use based on present information (% in ration)	Comments
Pig starter	0	Studies are needed to determine the value of alfalfa in starter rations which are used for very young pigs. None is recommended at present since data are lacking on the effect of alfalfa in starter rations.
Grower ration	2.5-5.0	Some investigators will recommend a higher level for pigs to be kept for replacement purposes.
Growing-finishing ration	2.5-7.5	Some investigators will recommend a higher level of 10 to 15% for pigs to be kept for replacement purposes. After pigs weigh over 110-125 lb. some will also recommend higher levels in order to produce a carcass with more meat and less fat.
Gestation ration	10-50	Levels of 10 to 15% are commonly used, although occasionally higher levels are fed.
Lactation ration	5-15	Occasionally levels of over 15% are used, although levels of 5 to 15% are used most frequently.
Per cent of supplement	5-25	This level will vary depending on the remainder of the feeds and other nutrients added to the supplement.

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- Prater Crusher-Feeder for Shucky Corn
- Magnetic Separators
- Prater Double Chain Drag Feeder
- Grain and Attrition Mill Blower
- Prater Cob Crusher
- Blue Streak Dual-Power AC Mill
- Prater Packaged Mill
- Rotary Airlock Feeders
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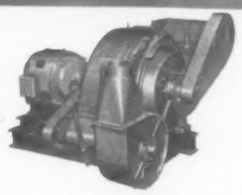


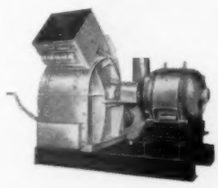
1. Prater Blue Streak Advance Custom Mill

2. Blue Streak Twin Spiral Mixer

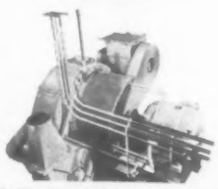
3. Blue Streak Dual-Degree Drag Feeder

4. Blue Streak Corn Cutter and Grader

5. Blue Streak Vertical and Horizontal Screw Conveyors



6. Prater Hay & Grain Grinder



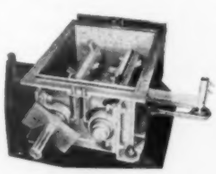
7. Blue Streak Advance Custom Mill with Pratermatic Screen Changer

8. Prater Crusher-Feeder for Shucky Corn

9. Prater Double Gap Permanent Magnet

10. Blue Streak Double Chain Drag Feeder

11. Blue Streak Grain and Attrition Mill Blower



12. Prater Cob Crusher

13. Blue Streak Dual-Power A.C. Mill with Pratermatic Screen Changer

14. Prater Automatic Package Mill

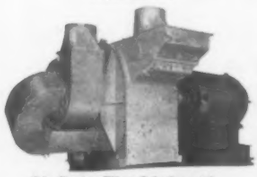
15. Prater Rotary Airlock Feeder

16. Prater Blue Streak Dual Screen Pulverizer

17. Prater Gradual Reduction

18. Prater Fibre Grinder with Separate Fan

19. Prater Blow-Thru Rotary Air Lock Feeder



20. Prater Fibre Grinder with Fan on Rotor Shaft

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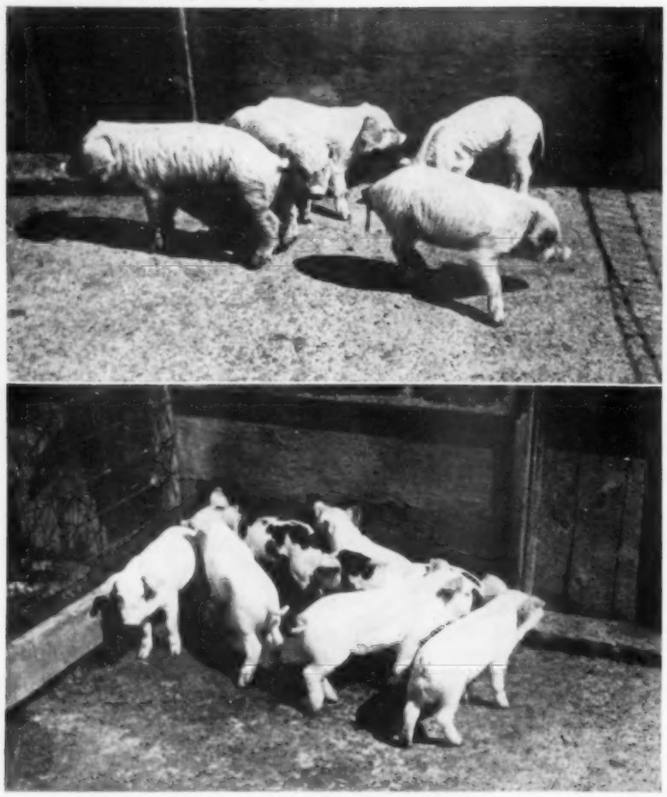

DIFFERENCE IN THRIFTINESS—The pigs in the picture above were from sows fed 5% alfalfa meal and those in the lower photo from sows fed 15% alfalfa meal. Note the difference in thriftiness. Dr. Cunha points out that higher levels of high quality alfalfa meal are valuable for sows fed in dry lot. Several experiment stations have shown that high-quality alfalfa meal contains some unidentified factor or factors which are of value for pigs during growth and which influence the ability of the pig to conceive, reproduce and lactate many months later. (Photos courtesy P. H. Phillips and G. Bohstedt, Wisconsin Agricultural Experiment Station.)

TABLE 2. Effect of the Level of Alfalfa on Swine Performance at Nevada Station

Level of alfalfa in the ration	Rate of gain and feed efficiency Trial I	Trial II	Trial III
0			1.82 (306)
10	1.2* (451)**	1.7 (466)	1.72 (357)
30	1.1 (480)	1.6 (462)	
35			1.37 (404)
50		1.3 (574)	1.01 (543)
60	0.9 (530)		

*Rate of gain.
**Feed required per 100 lb. of gain.

TABLE 3. Effect of Alfalfa on Carcass of Pig (6)

Alfalfa % in ration	0	10	30	50
Back fat, in.	1.80	1.73	1.31	1.11
Carcass length, in.	29.6	29.8	30.0	30.3
Dressing, %	74.6	73.0	69.6	68.1
	Per cent of carcass			
Loin	14.1	14.7	14.6	15.9
Ham	15.7	16.2	17.7	18.9
Shoulder	14.0	14.2	14.9	15.5
Bacon belly	13.7	14.1	13.3	12.4
Fat back	11.3	10.4	6.9	5.1
	Weight in grams			
Stomach	508	504	587	618
Large intestine	1272	1522	1589	1684

increased the rate of gain and efficiency of feed utilization. They also felt that creep-feeding the pigs a ration with 25% alfalfa conditions them so that they did better when fed high level alfalfa rations after weaning.

With the recent emphasis on producing a hog with more meat and less fat, one can see from the data in Table 3 that the use of higher levels of alfalfa in the ration is one way of producing an animal with less fat. Canadian workers (9) have shown that 25% of the barley in the ration could be replaced with 25% of either wheat bran or wild oats for 110-lb. pigs. In doing so, they produced a superior carcass without any change in rate of gain, feed intake, or length of feeding period.

Replacing the barley with 45% alfalfa or 45% wheat bran, however, caused a decreased rate of gain and increased length of feeding period, but superior bacon carcasses were still produced. This information and other data available in this country would indicate that some consideration needs to be given to the use of alfalfa and other higher-fiber content feeds during the latter part of the growing-fattening period as a means of producing a hog with more lean and less fat.

Feeding Breeder Pigs

It is also more desirable to feed a higher level of alfalfa to pigs which are going to be kept in the herd for breeding purposes. Although these pigs will not gain as fast, the extra fiber may provide a safeguard against overfatness and subsequent weak pasterns or breeding troubles.

Moreover, it has been shown at Wisconsin (2), Washington (3), Purdue (4) and other experiment stations that high-quality alfalfa meal contains some unidentified factor(s) which are of value for pigs during growth and which influence the ability of the pig to conceive, reproduce and lactate many months later.

This means, in my opinion, that prospective herd replacement gilts should be fed differently from pigs being fattened out for market. The herd replacements should get more alfalfa meal. Moreover, they should be fed high-quality rations which are properly fortified in all essential nutrients. This will pay big dividends later on by raising gilts that not only will settle quickly but that will also farrow large litters and wean a high percentage of their pigs.

Montana workers (10) at the recent American Society of Animal Production meetings reported on feeding sun-cured alfalfa in gestation rations at levels of 20, 50 and 100%. Tables 4 and 5 show some of the data obtained.

The data in Table 4 indicate that total feed consumption was very low when alfalfa was fed as all the ration (fed long in a rack). The 20 and 50% levels of alfalfa were ground and mixed with concentrate. The 20% level was hand fed, while the 50% level ration was self-fed.

Not enough data were presented in the abstract of this experimental work to allow one to draw much in the way of conclusions. However, it does indicate that high levels of alfalfa can be fed to sows and that in some criteria the results obtained were in favor of the 50% level of alfalfa over the 20% level. This is further evidence for the fact that alfalfa contains some factor(s) which are of value for reproduction by the sow.

Quite a few workers have shown that rate of gain is lowered and the feed required per pound of gain is increased when levels of 10% or more of dehydrated alfalfa meal are included in the ration of growing-fattening pigs. Illinois workers (10, 11) studied this problem and found that a majority of this is due to a lowered total digestible nutrient (TDN) content of the diet and to a lowered feed intake by the pig.

In their studies, dehydrated alfalfa meal was added as a replacement for yellow corn in a corn-soybean oil meal ration at 15 and 30% levels. Refined corn oil was also added to 15 and 30% alfalfa rations in order to provide TDN values equal to the control ration.

When feed intake was kept the same, the corn oil completely counteracted the decreased rate and efficiency of gain produced by 15 and 30% levels of alfalfa meal. With ad libitum feeding, however, corn oil improved the efficiency of feed utiliza-

TABLE 4. Farrowing and Weaning Data on Various Levels of Alfalfa

Level of alfalfa (%)	Feed consumption daily during gestation, lb.	Per cent of sows farrowing	Per cent of sows weaning litters
20	8.41	89.0	89.0
50	9.92	77.7	77.7
100	3.76	61.1	55.5

TABLE 5. Farrowing and Weaning Data on Various Levels of Alfalfa

	Level of alfalfa at which the best results were obtained Gilts	Sows
Heaviest pigs at birth	20%	50%
No. of live pigs at birth	20%	20%
No. of pigs weaned	50%	*
Heaviest litter weaning weights	50%	*

*Not reported.

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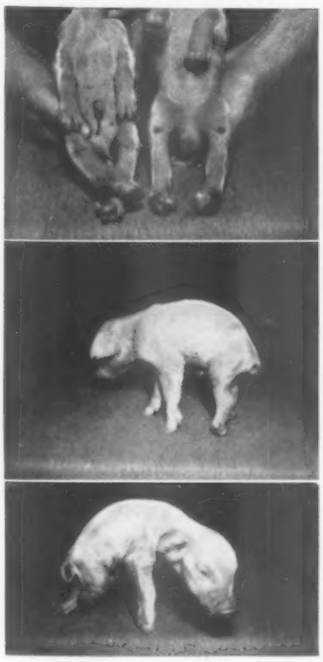

ABNORMALITIES — These leg abnormalities were obtained in pigs from sows fed corn-soybean rations with 5% of alfalfa meal in dry lot during their growing period as well as during gestation. No such abnormalities were obtained with sows fed 15% high quality alfalfa meal during the same period. (Photos courtesy P. H. Phillips and G. Bohstedt, Wisconsin Agricultural Experiment Station.)

tion but had no effect upon rate of gain. This was due to a lowered feed intake by the pig.

Thus, under some conditions, the use of higher levels of alfalfa will decrease rate of gain and increase the amount of feed required per pound of gain. This effect needs to be evaluated and balanced by the effect of alfa fa in supplying protein, minerals, vitamins and unidentified factor(s). This evaluation will determine the level of alfalfa to use and the economics involved. In some cases, it will be more economical to use higher levels of alfa fa whereas in others it will not be.

♥ ♥

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Herman Eversz Retires From Montana Mills

GREAT FALLS, MONT.—Herman McLeod Eversz has retired as manager of the Bozeman branch of the Montana Flour Mills Co., Great Falls. He has been succeeded at Bozeman by Alvin C. Anderson who was transferred from Harlowton, Mont.

Mr. Eversz entered the employ of the company at Lewistown, Mont., Sept. 1, 1919. He was transferred to Harlowton early in 1920 and a year later he was transferred to Bozeman to take charge of the office there. He continued in that position until his retirement Jan. 1.

ADA RESEARCH COUNCIL—The research program of the American Dehydrators Assn. is under the direction of this group of industry and college scientists—the Research Council. Above is the council which met during last year's ADA convention. From left to right, seated, are: Dr. L. C. Cunningham, Cornell University; Dr. H. O. Graumann, U.S. Department of Agriculture, Beltsville, Md.; Dr. E. F. Frolik, University of Nebraska; Dr. L. E. Card, University of Illinois; Herbert C. Schaefer, Ralston Purina Co., St. Louis; Roy C. Elrod, W. J. Small Co. division of Archer-Daniels Midland Co., Minneapolis; Dr. W. M. Beeson, Purdue University. Standing: Dr. Francis Bird, Eastern States Farmers Exchange, West Springfield, Mass.; Dr. H. R. Bird, University of Wisconsin; Dr. H. S. Wilgus, Peter Hand Foundation, Chicago; Dr. H. Ernest Bechtel, General Mills, Inc., Indianola, Iowa; Dr. C. Ray Thompson, USDA, Albany, Cal.; Harry J. Konen, feed consultant, Houston, Texas. Dr. Cunningham and Dr. Frolik are no longer on the council because their terms expired. Dr. Card resigned recently to do work in India. New members of the council who will meet with the group during the convention are Dr. W. W. Cravens, McMillen Feed Mills, Decatur, Ind.; and Dr. L. E. Hanson, University of Minnesota.

Milk Cooperatives Balk At Dairy Support Cut

LOUISVILLE—The managers of 17 milk producer cooperative organizations representing 30,000 dairy farmers said here recently that they will demand that farmers get as much for milk that goes into bottles in 1958 as they got for such milk last year.

Their formal statement was issued at the close of a two-day meeting here. It did not say what the farmers will do if the demand is not met, but the threat of a nationwide strike by farmers was implied by members.

The 17 organizations are in an area from Chicago to Florida.

A resolution adopted by the group said the decision was reached after "having given consideration to producers' milk prices for 1958 and with particular concern for the disastrous effect on income to dairy farmers which will result from the drop in dairy support prices.

Ezra Taft Benson, secretary of agriculture, has announced that effective April 1 supports for dairy products would be cut from the current 83% of parity to the minimum of 75%.

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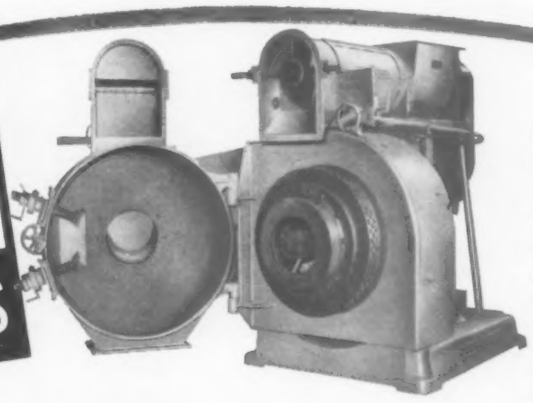

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Gas Storage

ITS AMOUNT AND IMPACT

By Joseph Chrisman
Executive Vice President
American Dehydrators Assn.

***EDITOR'S NOTE:** As part of its continuing effort to provide better quality alfalfa with a more level price, the dehydrated alfalfa industry is adding more and more inert gas storage. In this article, Mr. Chrisman discusses the importance of the growing amount of gas storage to the industry.*

Storage of dehydrated alfalfa under inert gas as a means of carrying stocks over long periods of time with a minimum loss of the oxidizable nutrients has gained by leaps and bounds in the past few years.

Apparently the acceleration of this movement did not slacken in the year 1957. The table shows such storage as we reported it a year ago in the Special Alfalfa Report section of Feedstuffs Jan. 25, 1957. The table also shows the amount in use in the year 1957 and the probable minimum of such storage to be available in the year 1958.

The 1957 figure is 100,000 tons greater than a year earlier showing a 38% gain in one year. The 1958 availability indicates a 46% increase over 1956 and a total capacity in the U.S. just about equal to the 5-year average disappearance of dehydrated alfalfa in the 6 months wintertime period of Nov. 1 to April 30.

With such storage space available it can be assumed that much of it is occupied more than once during the year by reason of the movement of stocks through the facility. It should be remembered too, that many firms have dry or flat storage as well which contributes to their ability to blend stocks to a uniform quality—stocks somewhat in excess of the actual inert gas storage stocks shown to be in use.

It is doubtful, of course, that all gas storage facilities are full to the brim on Nov. 1 of any year. We think it quite probable also that feed manufacturing firms, who in previous years stocked heavily during the summer or fall months, have noted the desirability of having such stocks held under preservation at the producing plant to be drawn out piecemeal during the non-producing season.

Joseph Chrisman

Some of the stocks now held under gas at producing points we know are sold and being stored on a custom basis.

Gas Storage Uses

Inert gas storage is being used in several different ways within the alfalfa economy. Some producers have adopted the philosophy of holding all the alfalfa produced during the season and selling only during the winter months. Others are using their facilities to store a major portion of the season's production, but selling at any or all times on contract for delivery during the non-producing months.

Still others are using their storage to permit orderly blending and marketing throughout the twelve month

GAS STORAGE CAPACITIES (tons)

	1956	1957	Additions for 1958	Total for 1958 season
Nebraska	106,000	155,000	14,000	169,000
Kansas	97,500	84,000		84,000
Colorado	16,500	22,500		22,500
Iowa	4,900	8,900		8,900
California	6,000	6,000		6,000
Missouri	3,000	8,700		8,700
Oklahoma	3,600	3,000		3,000
Illinois	400	5,800		5,800
Indiana	2,600	3,200		3,200
Minnesota	3,500	4,500		4,500
Ohio	13,300	38,100		38,100
Pennsylvania	3,900	3,500		3,500
Tennessee		18,000		18,000
Alabama			10,000	10,000
Total	261,200	361,200	24,000	385,200
Canada	7,750	8,000		8,000
Grand total	268,950	369,200	24,000	393,200

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period. Probably two-thirds of the gas storage is being used in this manner.

One of the greatest boons to the industry brought about by inert gas storage has been that it has made advantageous or even mandatory that blending accompany it. By means of blending in conjunction with preservation many have found it unnecessary any longer to give away protein and carotene in the periods of high quality production and, of equal importance, unnecessary to put lower grades on the market as distress material when quality drops severely.

We believe that with the preservative storage and blending facilities now in existence or to be in use next year and in future years there will be a gradual trend for prices in winter and summer to come closer together. There is less reason year by year now for pricing to be at production cost or lower during the producing season, with the resultant exorbitant winter-time highs as a means of recouping the summer loss.

We are currently in the midst of a readjustment in marketing procedures. In some quarters it might be said to be a painful readjustment. As might be expected, the peaks in the price curve have been chopped down before the valleys got much "fill."

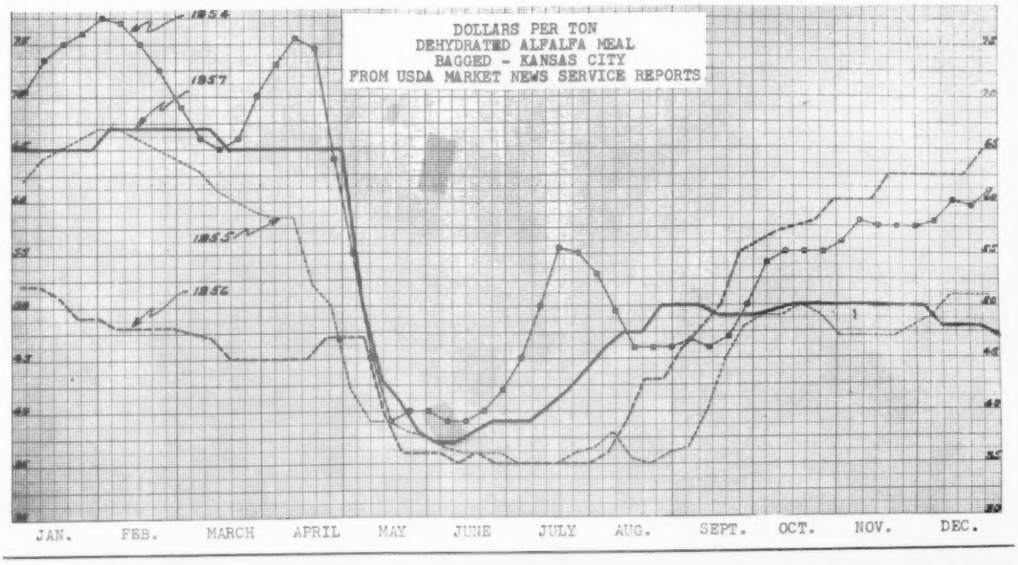
As may be seen by the chart the leveling began in the winter of 1955-56 and had we not experienced a severe cutback in production in the 1956 producing season it is doubtful the price curve would have rebounded to a Dec. 31 close of $65 that year. The level was maintained right up to May 1, 1957, thru the stability lent by gas storage.

Going into the year 1958 at this abnormally low market price of $47 would seem to portend a much smaller reduction in price at the beginning of new production and possibly a higher summertime low price.

Large scale and widespread storage of a type to preserve the perishable nutrients in dehydrated alfalfa has brought this situation into being. The time is fast approaching, in our opinion, when excessively wide price spreads will be a thing of the past, although some legitimate spread will always exist.

This narrowing of the price range, if it comes about, along with assurance of quality-protected stocks throughout the 12 months, should enable the feed manufacturer to engage in more orderly planning and buying with respect to this ingredient. A further benefit of this eventuality could very well be to expand the use of dehydrated alfalfa in all types of feed.

Extreme fluctuations in price do not promote the most extensive use of any product. It should also aid the dehydrator in his planning and rid him of some of the highly speculative aspects of the markets of the past.



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At the end of this trial, the Terramycin-fed group brought $1.52 more per head!

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In one trial an outbreak of sore mouth hit several pens of controls and animals getting Terramycin in the ration. The Terramycin-fed group gained 0.26 lbs. per day compared to 0.12 lbs. for animals not using Terramycin. Feed consumption was 9.55 lbs. of feed/lb. of gain vs. 19.97 lbs. for controls.

In another trial involving 1600 sheep, Terramycin cut enterotoxemia death losses to less than 1%! There was a 4.3% death loss among the animals not getting Terramycin.

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Feed efficiency	9.38	8.07
Feed effic. index	100	114
Dressing %	48.31	51.41

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Alfalfa Dehydration: Pricing and Production Policy Determined from Cost

By Charles E. Reed

Agricultural Economics Department, Kansas State College

What price can I accept for my product without going into the red? How many tons of dehy must I produce this season to have profitable operations?

These and other questions on pricing and production policy have probably bothered most dehydrated alfalfa operators at one time or another. The answers to these questions lie within the individual plant and are determined by operational costs.

The alfalfa dehydrator can find answers to some of his pricing and production questions by use of a tool that has come to be known as break-even analysis. This is a procedure that strikes at the heart of cost-price relationships. It facilitates price and production decision making and is, consequently, an invaluable aid in operating profitably.

What is break-even analysis? In substance, it is the process of finding the break-even point. The break-even point may be defined as that level of production or sales volume where total costs are just balanced by total income for the firm. In order to find this volume exactly, both costs and price must be known accurately.

In the dehydrating industry, with its fluctuating prices, the break-even point probably cannot be identified with precision. But preciseness in this respect is not needed to make break-even analysis useful to the dehydrator operator. Price uncertainty would, in fact, tend to make the device more valuable to him, because it will tell him with certainty what prices he can and cannot profitably accept.

Records Necessary

The fact that costs must be accurately known requires that adequate records be kept. These must be maintained in such a way as to separate fixed and variable expenses. Their practical value is in proportion to their completeness and detail.

Fixed costs are those expenses which do not change over a relatively wide range of production volumes. Variable costs change in accordance with volume produced. Occasionally a semi-fixed cost category is recognized. These remain fixed within fairly narrow ranges of production volume. For our purposes, however, we will consider only the two categories of fixed and variable costs.

Rent is a good example of a fixed cost. If the premises are rented at a stated annual or monthly figure, the amount remains constant regardless of whether the firm produces 1,000, 2,000 or 5,000 tons of dehydrated alfalfa during the season. For owned property, depreciation is a fixed item, especially if it is calculated on an annual basis. If the acquisition of facilities was financed by borrowing, then interest expense becomes an additional fixed cost. Many of these expenses must be paid even if there is no production.

One of the more obvious variable costs is that of raw material purchases. Other things being equal, a dehydrator operator will have to buy twice as much alfalfa to produce 2,000 tons of meal than is needed to produce 1,000 tons. Simiarly, total labor expenses will be higher at the larger volume, as will fuel and power costs. Some depreciation should also be considered as a variable item since the wear and tear on certain facilities depend on how much they are used.

To use break-even analysis, the operator has to do the following:

1. Separate the fixed and variable costs.

2. Find the total fixed cost he will have to pay during the year.

3. Calculate how much his variable costs are per ton of dehydrated alfalfa produced.

Determining Total Costs

Total fixed costs should not be difficult to obtain. All that is needed is to find the total yearly amount of expenses which are not directly concerned with production volume. To illustrate, let us assume the following fixed costs for a dehydrating plant:

1. Interest expense on mortgage	$ 3,000
2. Depreciation on building	4,000
3. Manager's salary (annual rate, not dependent upon production volume)	5,000
Total	$12,000

This $12,000 fixed cost constitutes the amount which must be covered before profits can be legitimately claimed. If the amount is to be paid for from operations, it can be done in only one way—by receiving an effective margin of price above variable costs.

Because variable costs have to be figured on a per unit basis, the job is

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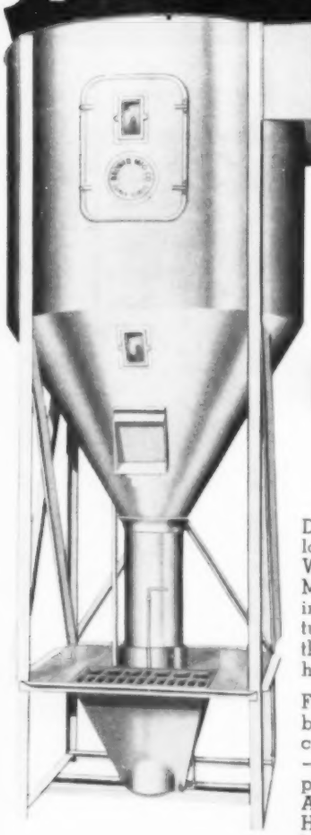

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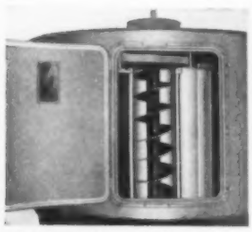

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a little more difficult. This may, however, be estimated from past experience and adjusted in the light of current differences. Thus, if labor rates have risen or the cost of raw material is more, calculations should reflect these changes. Or, if some dehydrated alfalfa has been produced, current variable expenditures can be used with reasonable accuracy even in the early part of the season. As an example, if a dehydrating firm has produced 100 tons of dehydrated alfalfa at a total variable cost of $2,500, then the variable cost per ton is $25. This is found by dividing the total variable cost by the number of tons produced.

Previously we assumed a fixed cost of $12,000 for a dehydrating firm. Let us now assume some variable costs for the same plant, viz:

Labor	$ 9.00
Repairs	3.00
Fuel	3.00
Electricity	2.00
Alfalfa	8.00
Other variable costs	5.00
Total variable cost per ton of dehydrated alfalfa	$30.00

A variable cost of $30 per ton means that if one ton is produced, variable cost totals $30; if 10 tons are produced, variable cost totals $300; if 100 tons are produced, variable cost totals $3,000, etc.

Break-Even Point

With our total fixed cost obtained, and a variable cost per ton of dehydrated alfalfa calculated, we are almost ready to determine our break-even point. The only other thing required is a price for the product. This the operator or seller meets in the market. Let us initially assume a market price of $40 per ton. We find the break-even point by means of the following formula:

$$\text{Break-even point} = \frac{\text{Fixed costs}}{\text{Price} - \text{variable costs}}$$

Using our assumed figures on this formula we get:

$$\text{Break-even point} = \frac{\$12,000}{\$40\text{-}\$30} = 1,200 \text{ tons}$$

This means that, under the assumed conditions of costs and price, our dehydrator just breaks even at 1,200 tons of production. If he pushes production beyond that point and maintains the same cost-price relationship, he begins to make profits.

A different cost-price relationship will fix the break-even point at another production figure. If price is as low as $33 per ton, for example, we have a new break-even point established in the following manner:

$$\text{Break-even point} = \frac{\$12,000}{\$33\text{-}\$30} = 4,000 \text{ tons}$$

The lower margin of price above variable cost requires more production in order to cover fixed costs. Of course, the margin can be affected by a change in variable costs as well as by a change in price. An increase in variable costs would have the same effect in margin as would a drop in price. When a dehydrator has to pay more for alfalfa on later cuttings during the season, he needs a higher price for his product to maintain his margin.

Determining Minimum Price

If a dehydrator has some idea as to his expected production for the season, and also knows his costs, he can determine the minimum price he can accept without sustaining a loss for his efforts. Suppose that an operator expects, on the basis of previous experience and current outlook, that he will produce about 3,000 tons of dehydrated alfalfa, he finds his needed price by the following formula:

$$\text{Price needed} = \frac{\text{Fixed cost}}{\text{Expected production}} + \text{variable cost}$$

Or using the figures that we have:

$$\text{Price needed} = \frac{\$12,000}{\$3,000} + \$30 = \$34$$

The price of $34 allows the producer to break even. To obtain a profit, he must get more than $34 per ton.

Occasionally the alfalfa dehydrator may find it necessary to accept a price below that indicated by break-even calculation. Sometimes he may find prices more favorable than required to break even. In either case, he can find new break-even prices if he has kept adequate records of costs and sales. To do this, he merely adjusts his price needed formula by taking into account his cost-price experience to date. The following formula does this for him:

$$P = \frac{F - (S - C)}{R} + V$$

where P is price needed, F is fixed cost, S is dollar volume of sales, C is total variable costs, R is expected remaining production and V is variable cost.

Let us assume that our operator has already produced 1,000 tons of dehydrated alfalfa and thus his average price received is $33 per ton. At this price, he cannot break even if he produces only the 3,000 tons which are his expectation. Moreover, the original break-even price of $34 is not enough to keep him out of the red. He needs a higher price:

$$\text{Price needed} = \frac{\$12,000 - (\$33,000 - \$30,000)}{2,000} + \$30 = \$34.50$$

If an operator has to accept a price which is even below variable costs the same formula provides him with the price he needs on later sales. Let us suppose he has sold his first 1,000 tons at $29 per ton. This is $1 per

(Turn to PRICING POLICY, page 28a)

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Experiments Confirm Essential Nature of Pantothenic Acid

Pantothenic acid was recently shown to be a limiting factor in the synthesis of vitamin C in experimental animals. The precursors of vitamin C (glucose cyclo-acetoacetate and glucuronic acid) were not converted to vitamin C unless sufficient pantothenic acid was available.

In another experiment at a western college agricultural station, it was confirmed that pantothenic acid and riboflavin are limiting factors in the growth of weanling pigs. Many of the important B-vitamins were not utilized for maximum growth until riboflavin and pantothenic acid levels were increased.

U.S.I. sells the calcium salt of pantothenic acid in both D and DL forms.

Bacitracin, Penicillin Found Best for Swine

In a recent swine feed research program, antibiotics and other growth stimulants were included in the rations of several lots of pigs. Results of the experiments show that the swine which received a combination of penicillin and bacitracin increased growth by 9.1% as compared to controls. This was in marked contrast to results obtained from use of all other supplements, where growth was increased by a maximum of only 5.2% over the control group.

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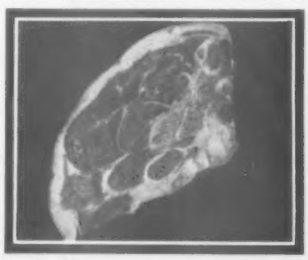
MOREA®-Fed Lambs Outperform Others In Midwest Lamb Day Competition

MOREA Gives Better Flavor and Meat Quality at Less Cost

Demonstrations at a leading midwest university, under the supervision of a well-known meat packer, again show that MOREA-fed lambs cost less to raise than those fed in the conventional manner. Yet these MOREA-fed lambs graded out with more primes than any other group. They had well-meated carcasses with whiter fat. The fat was not wasty, and the average thickness was less than on conventionally-fed animals.



Typical loin chop section of U. S. Choice MOREA-fed lamb. Note large, meaty chop with minimum cover fat.

Previous taste panel tests have shown that lamb from MOREA-fed animals has a superior flavor, not often found in meat from lambs fed ordinary rations.

MOREA shows other advantages

The lambs fed Morea supplement made 17% higher gains than lambs fed the packer's standard ration. The profit margin per lamb was the highest — 32¢ above the standard ration. MOREA-fed lambs consumed more roughage and less grain concentrate. They ate much more hay, much less corn and protein supplement. Their total feed intake was also higher, indicating a better nutritional status.

As with lambs, MOREA-fed beef cattle show outstanding carcass qualities: small cover fat, tender meat and more desirable dressing characteristics. Another advantage is that MOREA can be fed free-choice to ruminants during any stage of development, at any time of the year. Handling costs are substantially lower.

U.S.I. Expands MOREA Distribution

U.S.I. will sell a concentrated MOREA premix to authorized mixer-distributors who are currently being appointed. The market area includes most states east of the Mississippi and west of the Continental Divide.

Methionine Overcomes Urinary Infections

Large doses of methionine have cleared up stubborn urinary tract infections which are resistant to antibiotics or other therapy, according to experiments at an eastern medical school.

Upon oral ingestion, methionine acted as a urinary acidifier, and reduced both the pH and the bacterial count of the urine. After methionine intake, the urine contained an antibacterial substance, not present before methionine was given.

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Feeding Value of Dehydrated Alfalfa For Dairy Cattle

By Dr. C. A. Lassiter and Dr. C. F. Huffman
Dairy Department, Michigan State University

Dr. C. F. Huffman

SPECIAL ALFALFA REPORT

The feeding value of dehydrated forages for dairy cattle has been of interest to researchers and dairymen for a number of years. As early as 1910, the U.S. Department of Agriculture reported attempts to dry forages.

The capacity of this early dryer was low and the type of fuel used (steam) made the entire operation very expensive. The dehydrating of forages was dropped until about 1925 when heated air was used.

Vermont workers (1) in 1932 conducted trials on the feeding value of artificially-dried young grass. The production values of dried young grass as compared to a grain mix were determined by feeding trials with dairy cows. The dehydrated grass was used as a substitute for grain in this study. Milk, fat, and solids-not-fat production was essentially the same for cows either fed a grain mix or the artificially dried young grass. Grass clippings were used in this study. Therefore it is assumed that the grass was very immature.

Newlander (2) observed from the results of a double-reversal feeding trial an increased milk and fat yield when artificially-dried young grass was substituted for hay in the ration on a TDN basis. In this study, milk production was not maintained as well when the young grass replaced a portion of the grain mix.

Later, Newlander (3) reported the following TDN values for various artificially-dried forages: Corn silage, 67.7 dried and 68.2 wet (dry matter basis); sudan grass, 65.25; soybean hay, 71.3; oat hay, 70.6, and millet, 67.96.

Wisconsin workers (4) observed that the nutrients of green alfalfa exposed to temperatures of 480 to 535° C. in a Koon type drier for 40 seconds were no less digestible than those of similar alfalfas dried in the field. Watson (5) estimated the loss in nutrients during dehydration to be about 5%. Hilton, et al., (6) reported that artificially-dried alfalfa and soybean hays contain considerably more carotene than the same grades of hays cured in the sun. Other studies (7, 8, 9) have shown that artificially-dried forages perform very satisfactorily as components of dairy cattle rations.

Work Since 1950

Since 1950, a considerable amount of research work has been reported on the use of dehydrated alfalfa in the rations of dairy cattle. These studies can be divided into the following categories: (1) Dehydrated alfalfa as a roughage supplement to various types of rations. (2) Dehydrated alfalfa as the principal roughage. (3) Dehydrated alfalfa as a substitute for grain; and (4) as a component of calf rations.

In 1951, Bartlett, et al., at the Kansas Station (10) reported the results of two experiments in which dehydrated alfalfa pellets were used as a supplement to a roughage ration. In the first experiment, two groups of cows were fed alfalfa hay ad libitum and 2 lb. of sorgo silage per 100 lb. of body weight daily. Grain was fed according to production. Dehydrated alfalfa pellets were added to the ration of one group of cows at the rate of 0.5 lb. of pellets per 100 lb. of body weight daily.

In the second experiment, prairie hay replaced the alfalfa hay. Cows, when fed the alfalfa pellets, consumed 3.6 and 4.4 lb. more total hay equivalent per day for experiments 1 and 2, respectively. This resulted in an increase of 0.86 and 1.2 lb. of 4% FCM per day in trials 1 and 2, respectively. All differences between rations in respect to hay consumption and milk production were significantly different. In the second experiment, cows fed the alfalfa pellets produced milk which contained greater amounts of carotene.

Connecticut Study

In 1954, workers at the Connecticut Station (11) reported the results of a study similar to the one from Kansas. Twenty-four Holstein and Guernsey cows were grouped and fed four different types of rations. These consisted of four levels of dehydrated alfalfa pellets, 0.0, 0.5, 1.0, and 1.5 lb. per 100 lb. of body weight per day in addition to a basal ration.

The basal ration consisted of timothy-grass mixed hay fed ad libitum and grain at the rate of 1 lb. per 5 lb. of 4% FCM produced. The botanical composition of the hay was 7.7% foreign matter, 51.7% timothy, 14.5% clover and alfalfa, and 33.4% other grasses. The addition of each level of dehydrated alfalfa pellets resulted in a decrease in hay consumption but significantly increased total dry matter, TDN and net energy consumption.

The total adjusted dry matter intake increased from 26.2 lb. per day on the 0.0 level of pellets to 38.5 lb. per day on the 1.5 lb. level. These data agree very closely with those from the Kansas Station (10). There was an increase in both actual milk production and 4% of FCM with each increasing increment of pellet feeding.

The adjusted average daily production of 4% FCM was 25.8, 28.7, 32.5, and 33.5 lb. for the 0.0, 0.5, 1.0, and 1.5 lb. level of pellet feeding, respectively. There was no indication in this study that the feeding of the pellets had any effect on the butterfat percentage of the milk. The carotene concentration of the milk increased almost directly with each level of pellet feeding. All cows fed pellets increased slightly in body weight while the control cows decreased in body weight slightly.

More TDN Required

More TDN was required to produce a pound of 4% FCM as the level of pellets in the ration increased, but from this study it cannot be determined whether this was due to the presence of the alfalfa pellets in the ration per se or whether this was associated with cows being generally less efficient at higher levels of milk production (12).

The Connecticut Station (13) as well as the U.S. Department of Agriculture (14) have published studies in which dehydrated alfalfa was used as the principal source of roughage.

In 1953 Porter et al (13) at the Connecticut Station reported studies with milking cows involving three forms of alfalfa. These forms of alfalfa were: Field-cured and field-baled, artificially-dried and ground, and artificially-dried and pelleted. Molasses was added to the ground alfalfa at the rate of 10% by weight to reduce dustiness and to increase the palatability to a point where the intake was more nearly comparable to that of the basal and pelleted alfalfa. Grain was fed at the rate of 1 lb. per 4 lb. of FCM produced.

Each form of hay was fed for a 40-day period using a double change-over design. Cows fed either the

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ground or pelleted hay consumed slightly more hay than the cows fed baled hay, but the total consumption of hay and grain was essentially the same for all groups. The actual milk production of cows fed the baled hay was significantly lower than for the other two forms of hay with cows fed the pelleted hay being the highest. However, there was no difference between groups in respect to 4% FCM production due to a reduction in butterfat percentage in the milk of cows fed both the ground and pelleted hay.

The average butterfat content of the milk of cows fed the baled, ground, and pelleted hay was 4.07, 3.83, and 3.67%, respectively. The decline in butterfat test on ground and pelleted hay is in agreement with the findings of Powell (15) who observed earlier that the feeding of a completely-ground ration to dairy cattle lowered the butterfat content of the milk. The three rations had very little effect on the body weight of the cows.

Grain Consumption Varies

Since the field-cured hay was rained on, molasses had to be added to the ground hay and there was some difference between groups in respect to grain consumption. A second trial was conducted essentially the same as the first except these factors were corrected and chopped alfalfa was used instead of ground.

In the second experiment, the consumption of hay differed widely among the three forms. Consumption was 20.9 lb. for the pelleted hay, 27.4 lb. for the ground hay, and 30.3 lb. for the baled hay group, per cow daily per 1000 lb. of body weight. It was thought, however, that the degree of pellet firmness was largely responsible for the reduction in pellet consumption. The pellets used in the second experiment were made firmer than those fed during the first experiment. It was also noted that the particle size of the pellets used in the second trial was smaller.

No significant differences existed among groups in respect to actual milk production. The cows fed chopped hay produced slightly more than the other two groups and the milk production of cows fed the pelleted hay was slightly lower than those of cows fed baled hay. However, fat and FCM production was significantly greater when cows were fed the baled chopped alfalfa than the pelleted alfalfa hay ration. This was due primarily to a decrease in the butterfat content of the milk of cows fed pelleted hay.

The feeding of the all-pelleted hay ration also significantly decreased the body weight of the cows. Cows fed the baled, chopped and pelleted hay rations averaged 1,000, 1,007, and 962 lb. in body weight, respectively.

In 1954 the USDA (14) published a very comprehensive report of six years' work dealing with harvesting and preserving of alfalfa for dairy cattle feeding. The objective of the study was to determine the relative merits of harvesting a hay crop as field cured hay, barn dried hay, wilted silage, and dehydrated hay.

There were many factors considered that we are not concerned about in this review but in this study two things were considered which are of interest. These are: (1) The value of the forages for milk production and for animal growth; and (2) the effect of the forages when fed to dairy cows in the vitamin A potency of the milk and butterfat produced. The experiment covered six harvests and most of the comments in this respect will be made on the six-year average rather than the individual years.

Forages for dehydrated hay were chopped (¼ or ⅜ in. cut), brought to the dehydrator with 65 to 74% moisture and dehydrated in half an hour or less to 6 to 9% moisture. The feeding trials conducted to determine the value of the forages for milk production were Latin square design experiments conducted with six groups of cows over three periods of 40 days each.

Field cured hay was fed in three of the five trials with one hay being badly rain-damaged. Barn-dried hay and wilted silage were fed in all five trials and dehydrated hay was fed in two of the five trials.

More Appetizing

In respect to intake of the forages (total dry matter intake) when all data are considered, dehydrated hay and wilted silage were about equal and were more appetizing than any of the other forages. In the milk production trials, the experimental forages were fed on an equalized basis at about the same dry matter level as the least palatable forage, thus eliminating any differences in performance of the cows due to increased intake of any forage.

Corn silage was also fed as a roughage as well as grain according to production. Even though cows declined in milk production slightly less when fed the dehydrated hay, there was very little difference between hays in this respect except when rain damaged hay was fed.

The average 30-day decline for cows fed rain damaged hay was 13.6%; for field cured and no rain, 6.7%; barn dried no heat, 8.1%; barn dried with heat, 8.8%; wilted silage, 7.3%; and dehydrated hay, 6.4%. There were some differences in body weight changes among cows fed the various roughages, but none of these

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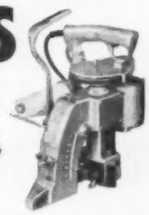

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differences were of a magnitude to have any significance.

In these experiments, carotene intake was the highest and the vitamin A potency of the butterfat was also the highest on high carotene, wilted silage. Dehydrated hay ranked next in both respects, followed in order by wilted silage with a medium carotene content, hay that was barn dried with heat, wilted silage with a low carotene content, hay that was barn dried without heat, hay that was field cured without rain damage, and field cured, rain damaged hay.

In addition to the use of dehydrated forages as a source of roughage, these feeds have been used as a component of grain rations or as a substitute for grain.

Grain Replacement

Hope, et al., (16) at the Washington Station tested the value of dehydrated grass (mixture of orchard grass, ladino clover, alsike clover, and timothy) as a grain replacement at four different levels: 0, 15, 30 and 45% of the total grain. Twenty-four cows were used in this study. It was divided into four six-week periods in a change-over type design experiment.

The roughage portion of the ration consisted of good quality, chopped alfalfa hay and a grass-legume silage. Results of this study showed that as the percentage of dehydrated grass increased in the ration, the gain in body weight decreased. The production of 4% FCM followed a similar pattern to that for body weight gains.

Cows on the control, 15, 30, and 45% dehydrated grass ration, produced 36.8, 35.5, 35.3, and 35.7 lb. of 4% FCM per cow daily, respectively. As was pointed out in this study, these differences among rations cannot be attributed to differences in TDN intake since they were essentially the same on all rations. The finely-ground physical state of the dehydrated grass was undesirable, since cows having 30 and 45% of their grain replaced showed varying degrees of rumen atony and anorexia.

In a later study Blosser and coworkers (17) used 21 high producing cows in studies to evaluate dehydrated alfalfa in the grain mixtures of dairy cows. Three physical forms of dehydrated alfalfa were used; namely, finely ground, chopped, and pelleted.

Alfalfa hay was fed ad libitum and grass silage preserved with wood molasses was fed at the rate of 3 lb. per 100 lb. of body weight. Grain was fed at the rate of 1 lb. per 3 lb. of 4% FCM produced.

After the necessary grain was calculated, 30% was replaced with one of the three physical forms of dehydrated alfalfa. The ground alfalfa was finely ground through a hammer mill, the pellets were 0.25 in. in diameter and 0.25 in. long, and the chopped material was fed in the same physical state as it came from the field chopper; namely, 0.25 to 2 in. lengths.

In this experiment cows fed pelleted alfalfa produced significantly more than 4% FCM than cows fed finely-ground alfalfa and slightly more milk than the cows fed chopped alfalfa. The average daily production of 4% FCM on the finely-ground, chopped and pelleted alfalfa was 33.7, 34.2, and 35.4 lb., respectively. A decline in production was more rapid on finely ground and chopped alfalfa than on the pelleted material.

There were no significant differences among groups in respect to body weight changes. Neither did the physical form of the alfalfa have any great effect on the butterfat content of the milk. Very little difference existed among groups in total feed, TDN, hay, silage, grain, or alfalfa consumption. Thus, it was not possible to explain the increased milk production from pelleted alfalfa feeding from a feed intake or TDN consumption viewpoint.

A report from the Wyoming Station (18) indicated that the addition of either alfalfa meal or pellets to grain rations of cows resulted in lower milk production.

Another area in which dehydrated alfalfa has been used has been in the feeding of young dairy calves. Most of this work has been done by the Connecticut Station (19, 20, 21, 22). In the first study (19), three types of alfalfa hay were compared—field-cured and baled, artificially-dried and ground, and artificially-dried and pelleted. The calves fed the pelleted hay consumed considerably more hay than either of the other two hays. Calves fed the ground hay had the lowest consumption.

The calves fed the pelleted alfalfa hay made greater total gains than those calves fed the other two types of hay with essentially no difference existing between the growth rate of calves fed either the field-baled and ground hays.

More Carotene

Calves fed pelleted hay showed higher blood plasma levels of both carotene and vitamin A.

Results of a second trial (20), in which Guernsey calves as well as Holstein calves were used, largely confirm the observations made in the initial study.

In a third study (21) calf starters were fed containing varying amounts of dehydrated alfalfa meal. The four starters contained 0.0, 25.0, 50.0, and 75.0% alfalfa meal. It was observed that as the percentage of alfalfa meal was increased in the complete ration that the amount of total ration consumed decreased, as well as growth rate. The growth of the control calves was about equal to those fed the 50% alfalfa ration, greater than the 75% alfalfa ration but less than the 25% alfalfa ration. Maximum utilization of carotene occurred with the 50% alfalfa ration.

In a fourth study (22), four initial levels of dehydrated alfalfa pellets were fed and the amounts of alfalfa in each of the initial mixtures were increased at three different rates with age. The initial levels of alfalfa used were 10, 15, 20, and 25% of the total ration. The weekly increase of alfalfa rates was 1.000, 1.175, or 1.349, while the parts of starter were held at their initial levels.

Maximum feed consumption was found to occur at an initial level of 18.3% alfalfa and at a 1.214 rate of increase. Maximum gain in live weight was calculated to be at an initial level of 17.0% of alfalfa and at the weekly rate of increase of 1.182. Data were collected which showed that plasma carotene was markedly influenced by carotene intake.

Recently the Illinois Station (23) has reported data relative to the use of alfalfa pellets as a source of roughage for young dairy calves. In this experiment, the pellets were made

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Q: What happens if my livestock do not get enough vitamin D?

A: Symptoms of severe deficiency (rickets) are stiffness, bowed legs, arched back, swollen joints, difficulty in lying down or moving about, hair coat dull and coarse, and over-all appearance of unthriftiness. Mild or borderline deficiencies which do not cause symptoms severe enough to be noticed occur far more frequently and are the ones that cause the greatest loss in profits through slower growth and poorer feed utilization.

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from field-cured and baled hay rather than dehydrated hay. However, the value of pelleting hay for calves was once again shown. The calves fed the alfalfa pellets consumed much larger quantities of hay in the pellet form than when chopped hay was fed. Faster gains resulted.

Summary

In summary, it can certainly be said that dehydrated alfalfa has been tried under a variety of conditions in an attempt to find its place in the feeding of dairy cattle. Dehydrated alfalfa has been tested mainly under four conditions: (1) As the sole roughage; (2) supplement to the roughage program; (3) part of the grain mix or as a replacement for grain; and (4) as a feed for dairy calves.

In general, when dehydrated alfalfa has been used as the sole roughage or as a supplement to the roughage program, it appears to be about equal or slightly superior to good field cured hay that has not been damaged by rain and far superior to rain-damaged hay. In some cases, dehydrated alfalfa has not performed well due apparently to the physical form of the alfalfa (pellets, ground, etc.) rather than the alfalfa per se.

As a replacement or substitute for grain, dehydrated alfalfa has not performed so well. Even though dehydrated alfalfa is very high in quality as a roughage, it does not appear to be as good a source of energy as normal concentrates.

Dehydrated alfalfa, especially in the pellet form, appears to show its greatest effect as a roughage for calves. Calves fed alfalfa pellets consumed much larger quantities of hay as compared to the long form and had faster gains.

It would appear that dehydrated alfalfa has not found its proper place in dairy cattle feeds. When it is used as a principal roughage, it is very doubtful that the market demand would be very great due to the economics involved. Experimentally, the use of dehydrated alfalfa as a replacement for grain has not been satisfactory. Thus, this area does not look promising.

Dehydrated alfalfa has performed well in calf rations, but as yet, dairymen in general have not been educated on the value of high-quality roughages for calves. In addition the total tonnage would not be very great for calf feeding alone.

It appears to these authors that probably dehydrated alfalfa has its greatest place as a supplement to roughage rations, particularly in low-quality roughage rations. Some work has been conducted in this area, but it would appear that amounts of alfalfa used have been too high.

If it could be shown that supplementing a roughage program with 1 to 3 lb. of alfalfa pellets per day would give an increase in performance of the cows to a greater extent than just its hay value, it would appear that dehydrated alfalfa could serve a useful purpose in the feeding of cows. A high proportion of the hay fed to cows in this country is still medium to poor in quality. It appears that additional research work is needed in this area.

v v

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New Developments in the Use of Dehydrated Alfalfa Meal in Poultry Feeds

● By Dr. J. R. Couch
Texas A&M College

INTRODUCTION: Dehydrated alfalfa meal has been used in manufactured poultry feeds for over 25 years and has served as a source of provitamin A, riboflavin, folic acid, vitamin E, vitamin K, unknown growth factors and minerals.

Couch, Isaacks, Reid, Crawford and Quisenberry (1957) reported that growth and sexual maturity could be effectively retarded by restricting the energy intake of broiler strain replacement pullets. The retardation of growth and sexual maturity apparently had a favorable effect on the development of the female reproduction tract in the pullet. It was observed that pullets reared on a restricted feeding program produced larger eggs even after being in production for periods of four to five months.

SPECIAL ALFALFA REPORT

Dehydrated alfalfa meal ranging from 13-15% protein can be used as a fiber source to decrease the energy content of these developer-type feeds for replacement stock. In this particular instance the nutritionist is seeking a low protein-high fiber product which also has a low energy content. Such dehydrated alfalfa meal may be used at levels ranging from 25-40% or more of the total feed formula. This is definitely a new usage for dehydrated alfalfa meal of low protein and high fiber content.

The product may also be used in developer formulas for turkey breeders after the 18th week. Such experiments are now in progress in the Department of Poultry Science of the Texas Agricultural Experiment Station, College Station, Texas.

THE GROWTH INHIBITOR IN ALFALFA: A number of research workers (Cooney et al., 1948; Draper, 1948; German and Couch, 1950; Heywang, 1950; Lepkovsky, 1950; Peterson, 1950a, 1950b; Kodras et al., 1951a, 1951b; and Ayala and Johnson, 1951) have reported the depressing effect of feeding high levels of dehydrated alfalfa meal upon the growth and feed efficiency of chicks. Peterson (1950b) produced a growth-depressing effect by the addition of saponin to a basal diet and indicated that such a compound contained in alfalfa might be the active ingredient responsible for the growth depression obtained through the feeding of high levels of alfalfa to chicks. Evidence has been presented to the effect that the presence of saponin in dehydrated alfalfa meal may be responsible for the growth-depressing effect obtained through the feeding of high levels of this ingredient and that 1% cholesterol would counteract the effect of incorporating dehydrated alfalfa meal at high levels or saponin in the diet (Peterson, 1950b; Kodras et al., 1951a; and Heywang and Bird, 1954).

The growth depressing effect of dehydrated alfalfa meal may be summarized by stating that it is of little consequence. Higher levels of dehydrated alfalfa meal (10 to 20% or higher) were required to produce the growth-depressing effect. Dehydrated alfalfa meal is being used in formula feeds at the present time at levels in the range of 2½ to 3%. Thus, it might be stated again that the growth-depressing effect of alfalfa is negligible or non-existent at such levels.

THE COMPOSITION OF DEHYDRATED ALFALFA MEAL: Dehydrated alfalfa meal contains the following vitamins on a per gram basis (Perry, 1955): Thiamine, 8 micrograms; riboflavin, 16 micrograms; pantothenic acid, 33.7 micrograms; niacin, 40.4 micrograms; folic acid, 11.3 micrograms; 174 milligrams of tocopherols per pound; 475 milligrams of choline per pound; and 100,000 International Units of vitamin A per pound as provitamin A or carotene.

Natural feedstuffs contain an adequate amount of thiamine so that it has not been found necessary to add this vitamin to the feed. Most feed manufacturers add riboflavin, pantothenic acid, niacin, choline and vitamin A (stabilized) to poultry feeds; thus, the amounts found in dehydrated alfalfa meal would be of little consequence.

Dehydrated alfalfa has always been considered as a source of carotene or provitamin A in manufactured feeds. The introduction of synthetic vitamin A and stabilized vitamin A products to the feed industry has decreased the necessity for including dehydrated alfalfa meal as a source of carotene or provitamin A. Dehydrated alfalfa meal may provide a significant quantity of tocopherol when used at a level of 2½ to 3% (50 to 60 lb. per ton) in poultry feed.

Dehydrated alfalfa meal contains an average of 10.8% ash or inorganic matter. Potassium and calcium are present to some extent whereas phosphorus, magnesium, sodium, manganese, boron, iron and copper are present largely as traces.

Dehydrated alfalfa might possibly be a significant source of the unidentified factor or factors which have recently been reported to be essential for growth, feed efficiency and normal bone development by workers from Cornell University and Texas A&M (Norris and Morrison, 1956; Reid, et al., 1956; Couch, et al., 1955; Norris, 1955; Reid, et al., 1956; Scott, 1956; Reid, et al., 1956; Norris, et al., 1956; Morrison, 1955; and Morrison, et al., 1956). Such an hypothesis has not been fully evaluated. Additional research is needed in this regard.

The essential amino acid content of alfalfa meal has been listed (Perry, 1955) as follows: histidine, 0.22%; arginine, 0.56%; lysine, 0.89%; leucine, 1.19%; isoleucine, 0.65%; valine, 0.80%; methionine, 0.03%; threonine, 0.60%; tryptophane, 0.26%; and phenylalanine, 0.74%. It is not anticipated from published data that dehydrated alfalfa meal can serve as a significant contributor of the essential amino acids when included in the formula at the level of 2½ to 3%.

THE UNIDENTIFIED GROWTH FACTOR IN ALFALFA: Hansen and co-workers (1953) reported that chick growth was stimulated when either dehydrated or sun-cured alfalfa was added to a purified type diet containing adequate amounts of all known growth factors.

The factor responsible for such growth enhancement appeared to be more concentrated in sun-cured than in dehydrated alfalfa meal. These workers suggested that the high temperature required to process dehydrated alfalfa meal decreased the growth factor activity of such meal.

The latter-mentioned workers reported further that existence of the growth factor in alfalfa meal was difficult to demonstrate with chicks when the meal was added to a practical type diet.

Anderson and Draper confirmed the earlier work of Hansen et al. through a report in 1954 to the effect that the addition of alfalfa to purified chick diets increased the growth rate of chicks while the addition of alfalfa to commercial-type diets had little or no effect.

Fisher, Scott and Hansen (1954) in a further report showed that the growth response obtained by adding alfalfa meal to the purified type diet could not be explained on the basis of the ash, critical amino acids or glucoronic acid content of this feed ingredient.

These workers tested sources of unidentified growth factor supplements including defatted whole liver and dried whey and stated that the alfalfa meal produced the greatest and most consistent growth responses of any of the supplements tested. It would appear from the chick growth studies which have been reported that alfalfa contains a chick growth factor which is different from any of the known factors, that such factor is not amino acid-like in nature and the growth-promoting activity of this product cannot be attributed to a known inorganic ion.

The value of such a growth factor from the practical standpoint is questionable at the moment, since it has been difficult to obtain a growth stimulation through the incorporation of dehydrated alfalfa meal into a practical type feed formula. It is quite possible that the unidentified growth factor content of the dehydrated alfalfa meal is obscured through the low energy content of this ingredient when dehydrated alfalfa meal is incorporated in a practical type feed formula.

Dr. J. R. Couch

NUTRITION OF MATURE FOWLS-CHICKENS: Hunt and co-workers in 1939 had reported earlier that the hatchability of eggs from hens fed 5% dehydrated alfalfa meal and 5% dried skim milk was consistently higher than that of eggs from hens fed 10% dried skim milk.

Cravens and co-workers reported in 1942 that there was a marked improvement in the hatchability of eggs from pullets when from 0.5 to 10% dehydrated alfalfa meal was added to the diet. The optimal level in laying rations appeared to be about 2% according to these workers.

Jacobs and co-workers from the Texas Station reported in 1953 that dehydrated alfalfa meal contained an unidentified factor which was necessary for fertility and hatchability. The latter mentioned workers also showed data to the effect that dehydrated alfalfa meal could serve as a significant source of vitamin K when used in the diet of the breeder hen to protect the newly hatched chick against a deficiency of this vitamin.

A new syndrome has recently been observed in the field to an appreciable extent and also in the laboratory (Couch, 1956; Fisher and Weiss, 1956).This condition is characterized by exceptionally large fatty livers and an accumulation of fat in the area of the kidneys and also appears to be associated with an increase in the cholesterol and lipid content of the blood. The Texas group observed a higher content of cholesterol in the blood of non-laying hens than was found in that of consistent layers.

It would appear from these observations that the trouble may develop after laying stops; but on the other hand, it may also be responsible for the cessation of laying. It is the opinion of the writer that this condition has been brought about to a very large extent through an increase of the energy content of laying feed formulas. It would appear that it might be wise to investigate the effect of alfalfa as a means of preventing and/or controlling this so-called fatty liver syndrome.

The addition of 10% pulverized oats to an all-mash diet did not appear

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to have any effect on the occurrence of fatty livers or the level of cholesterol in the blood in studies conducted in the writer's laboratory in 1956. Thus, it would appear that fiber per se does not have any effect on the occurrence of the condition. It is quite possible that the unidentified factor content of alfalfa might have some effect on the prevention of the fatty liver condition.

TURKEY HATCHABILITY: It has been shown repeatedly that turkey hatchability decreases after turkey breeders have been in egg production for 8 to 12 weeks. Dehydrated alfalfa meal contains a factor which is necessary for prolonged hatchability and healthy embryonic development when this ingredient is included in a turkey breeder feed formula (Atkinson, et al., 1955; Ferguson, et al., 1956).

Research studies with turkey breeders are laborious, of long duration, and results are not as easily obtained as is the case with growth studies. The research worker is able to run only one experiment per year.

The results from studies conducted in 1956 showed again conclusively that dehydrated alfalfa meal contained a factor that was necessary for sustaining hatchability of turkey eggs and the normal development of the turkey poult through an extended period of 27 weeks. It was necessary to use condensed fish solubles or dried brewers yeast or both along with 5% dehydrated alfalfa meal in order to maintain the hatchability of turkey eggs at the normal level.

It was of interest to the writer to note that a turkey breeder formula which contained dehydrated alfalfa meal (5%), condensed fish solubles (5%) and dried brewers yeast (5%) maintained hatchability at the same level throughout the 27-week experimental period. It was not possible from these data to determine or postulate as to the number of unidentified substances found in these three ingredients.

It has been the writer's experience that it is better to include more than one source of an unidentified factor in a practical feed formula in order to guard against variation in the unidentified factor content of each ingredient, the destruction of such factor and the availability of the factor or factors in the various ingredients.

Turkey hatchability is of extreme economic importance. The unidentified factor content of the alfalfa greatly offsets the lower energy content of the alfalfa when this ingredient is compared with corn in a turkey breeder feed formula.

SUMMARY AND FUTURE DEVELOPMENTS: It is apparent from the above discussion that dehydrated alfalfa of low protein content can be used as a source of fiber to decrease the energy content of formulated feeds for replacement laying stock. These "developer type" feeds are fed from the time the birds are 6-8 weeks of age until approximately 21 weeks of age. Such "restricted type" feeding has been found to retard growth and delay the initiation of sexual maturity, which in turn results in better egg size after the pullets start laying.

The low protein dehydrated alfalfa meal may also be used in developer formulas for turkey females that are to be kept for breeding purposes. Such feeds may be fed to turkey pullets from about 18 weeks of age until 30-32 weeks of age. The low protein dehydrated alfalfa meal may be used in such formulas at levels ranging from 25-40%.

In addition to providing crude fiber, which is useful in decreasing the energy content of the developer type formulas, it is quite apparent that the low protein dehydrated alfalfa contains significant quantities of the unidentified alfalfa growth factor, is a good source of essential amino acids and provides an excellent source of trace minerals which may be essential, according to the reports from the Department of Poultry Science, Texas A&M College and Cornell University (Couch, et al., 1955; and Norris, 1955).

Dehydrated alfalfa meal of the highest protein content should be selected for use in broiler feeds and laying mash formulations. It is now possible to obtain dehydrated alfalfa meal containing as much as 20% protein. The feed nutritionist should in all cases insist upon the highest protein content which is available in the formulation of broiler, starter and laying feeds for chickens and for prestarter, growing and finisher feeds for turkeys.

Research on dehydrated alfalfa meal is continuing. The American Dehydrators Assn. has sponsored many projects in the field of poultry nutrition and is continuing to encourage such investigations at many universities and agricultural experiment stations. New methods of fertilization, new varieties and more advanced methods of processing are continually under study. It is predicted that dehydrated alfalfa meal of higher protein content, even than 20%, will be available to the feed trade within the next five years.

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PRICING POLICY

(Continued from page 21a)

ton less than his variable cost. It works out as follows:

$$\text{Price needed} = \frac{\$12{,}000 - (\$29{,}000 - \$30{,}000)}{2{,}000} + \$30 = \$36.50$$

By sustaining a loss of $1,000 on his first 1,000 tons sold, he has added that much to the fixed expenses which must be covered before loss can be avoided. In other words, the remaining 2,000 tons must be sold at a price which will take care of the $12,000 fixed cost plus the $1,000 deficit on sales.

Variable Costs Change

Variable costs change during the production season. Dehydrators usually find it necessary to pay more for their alfalfa on later cuttings. When dehydrated alfalfa is stored, additional expenses are incurred, the amount

of which depends on volume stored and time in storage.

In order to find what price is needed to adjust for these changes in variable cost, it is necessary only to insert the new variable cost figure in its proper place in the formula. If variable cost has risen to $32 per ton, then this figure must be used instead of the $30 used previously. The last example above would be changed as follows, assuming total variable cost to date remains the same, i.e., is based on $30 for the first 1,000 tons sold;

$$\text{Price needed} = \frac{\$12{,}000 - (\$29{,}000 - \$30{,}000)}{2{,}000} + \$32 = \$38.50$$

In summary, we may say that the margin of price above variable cost and the absolute amount of fixed costs are the important factors to keep in mind. If there is no margin, the producer has no proceeds from operation to apply against fixed costs, or in other words, there is no break-even point. The dollar total of fixed costs determines how many tons of dehydrated alfalfa must be sold if the margin is known; and the dollar total of fixed costs divided by anticipated production gives the margin that is needed. In the event that price is below variable cost and likely to continue that way, it may be less expensive not to operate at all.

Importance of Dew Studied by Scientists

WASHINGTON—A recent publication of the U.S. Department of Agriculture gives an indication of the possible importance of dew to plants. Dew may be more important as a source of water for plants than many formerly believed. Tests in Ohio revealed that dew may account for as much as 10 in. of water per year.

Researchers point out that during the morning hours, while the dew is evaporating from the leaves and soil surface, less water is withdrawn from the soil than would be the case if the dew were not present. In this way the dew serves to conserve appreciable quantities of water held in the soil.

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Dehydrated Alfalfa in Rations for Sheep

By Dr. O. O. Thomas
Animal Husbandry Department
Montana State College

Alfalfa has long been considered one of the best feeds for sheep particularly during the pre-lambing and lambing periods. In many areas, inclement weather hinders production of top-quality alfalfa. With the establishment of dehydrated alfalfa plants in western areas, dehydrated alfalfa can be obtained at reasonable costs. Now most commercial pellets used for wintering livestock contain some dehydrated alfalfa meal. However, dehydrated alfalfa alone balances most of the deficiencies of range forage.

Most commercial sheep operators find it advisable to feed some type of supplement during part of the winter feeding period. It is essential that these supplements be low in cost and still supplement the deficiencies of range forage or roughage used. There are three critical periods which influence production of the ewe—breeding, wintering and lambing. How well the ewe is fed during these periods determines to a large extent how many pounds of lamb she may wean.

Feed During the Breeding Period: During the past few years, experiments have been conducted at the Montana Experiment Station to determine the value of feeding ewes during the breeding period. Hoversland et al. (1956) reported on three years of a trial in which ewes were fed ½ lb. of a 20% protein pellet approximately 17 days prior to and through the breeding season.

The fed ewes dropped approximately 6 to 16% more lambs than the nonfed ewes. Supplemental feeding of these mature ewes prior to and during breeding significantly influenced the number of lambs born per hundred ewes bred by 13.7%, and reduced the number of dry ewes and increased the number of multiple births.

From 1954 until 1957, a 30% protein pellet was fed during breeding and lambing. The ewes fed this pellet, prior to breeding, dropped from 3 to 8% more lambs than those which did not receive this supplemental pellet. Both of these supplements contained 20% dehydrated alfalfa meal.

Dehydrated Alfalfa in Gestation Rations: Range ewes at the Montana Agricultural Experiment Station have been fed various supplements to determine their value in production of lamb and wool. Van Horn et al. (1957) initiated an experiment to determine the value of dehydrated alfalfa as a supplement when fed to ewes wintered primarily on hay.

Approximately 1,000 purebred Columbia, Targhee, and Rambouillet ewes were divided into four groups. Group 1 ewes were not fed a supplement until 30 days before lambing and then were given ½ lb. per day of a 20% protein pellet. Ewes in groups 2, 3 and 4 were fed at the rate of ⅓ lb. per day from approximately Jan. 1 to April 1 each year.

A 20% protein supplement was fed Group 2; a supplement composed of 50% dehydrated alfalfa meal and 50% of the composition of the pellet given Group 2 was fed to Group 3; and a dehydrated alfalfa pellet was fed to Group 4.

Table 1 shows the design of the trial, the average production of ewes, and financial return for three years.

TABLE 1. Average Production of Wool and Lambs and Financial Return (1952-55)

Lot No.	1	2	3	4
Feed treatment supplement	20% Protein	20% Protein	½ 20% Protein ½ Dehy.	Dehydrated Alfalfa
Amount fed per day, lb.	1/2*	1/3	1/3	1/3
Number ewes (3 years)	740	740	735	736
Average weaning weight of lamb/ewe on experiment	88.5	86.1	88.0	88.9
Average weaning weight of lambs from 2-year-old ewes	67.2	66.0	64.2	69.8
Grease wool, lb.	9.6	9.9	9.9	9.9
Clean wool, lb.	5.3	5.4	5.4	5.4
Financial return/ewe ($)	28.70	28.09	28.31	28.73
Average cost of pellets per ton ($)	81.00	81.60	81.80	83.00

*Fed only 30 days prior to lambing.

TABLE 2. Supplemental Feeding of Ewes Different Kinds and Amounts of Supplements Average of Three Years Protein Pellets (Average of Three Years, 52-55)

Lot No.	0	1	2	3	4	5	6	7
Kind of protein supplement	0	11	Dehy.	11-30	30-11	30	30	11
Amt. of feed/day, lb.	0	1/3	1/3	1/3-2/3	2/3-1/3	2/3	2/3	1/3
Range	X	X	X	X	X	0	X	X
Hay	0	0	0	00	0	X	0	0
No. ewes (3 years)	329	326	333	331	325	325	333	330
Average weights, lb.:								
Initial	138.6	138.2	138.2	139.5	137.6	138.6	138.8	138.5
Final	131.9	140.3	139.8	149.6	144.5	166.5	154.3	135.2
Gain	—6.7	2.1	1.6	10.1	7.3	27.9	15.5	—3.3
Lambs born, %*	126.7	128.8	124.3	123.6	123.1	129.1	130.7	120.0
Dry ewes, %	12.2	9.2	10.8	9.4	8.0	6.3	8.2	11.8
Weaning weights, lb.	74.2	74.7	75.1	77.4	77.6	80.1	78.4	74.7
Weaning weights, lb.*	57.3	67.8	65.4	73.0	71.2	78.6	73.4	63.2
Feed cost/ewe ($)	1.27	2.66	2.62	3.87	3.87	8.41	5.04	2.06
Return/ewe after feed costs ($)	14.95	15.55	15.18	15.27	15.05	11.68	14.34	15.25

*Based on number of ewes starting the experiment.

The pounds of lamb weaned per ewe on experiment was 2 to 3 lb. higher for ewes fed a ration with dehydrated alfalfa. There was no difference in the wool production from ewes fed the entire wintering period. The return for three years per ewe on experiment was 64¢ greater per ewe for Group 4 ewes, fed a dehydrated alfalfa pellet, as compared to Group 2 ewes, fed a 20% pellet. Group 3 ewes fed a pellet with 50% dehydrated alfalfa returned 22¢ more than Group 2 ewes.

Group 1 ewes fed only the last 30 days of the gestation period at a level of ½ lb. daily returned more than Group 2 ewes and nearly as much as those fed dehydrated alfalfa. Two-year-old ewes fed in Group 4 (dehydrated alfalfa) weaned more pounds of lamb per ewe on experiment than two-year-old ewes fed in other groups.

During the three years of this study (1950 to 1953) dehydrated alfalfa was brought to Montana from Colorado and Nebraska at a cost of about $20 for freight. Had the freight cost been lowered, the cost of the dehydrated pellets would have been cheaper than the 20% protein pellet used at that time.

In 1953, an experiment was initiated with 1,000 head of grade ewes of Targhee, Rambouillet, and Columbia breeding (Van Horn et al., 1956). These ewes were divided into 8 lots according to breed and age and were grazed on native range during the winter. Each morning they were cut into their respective lots for feeding.

The supplemental feed used in the experiment consisted of an 11% protein pellet composed primarily of barley, a 30% protein pellet (which included 20% dehydrated alfalfa meal), and a dehydrated alfalfa meal pellet. The design of the trial and level of feeding are shown in Table 2.

Protein Levels Varied

Groups 3 and 4 were fed at different protein levels and different amounts during the first and last half of the gestation period. Group 5 ewes were taken from the band and fed alfalfa hay at ranch headquarters. Group 7 ewes were fed different amounts of feed according to weather conditions.

The level of feed influenced the percent of lambs born, weaning weight of lambs and weight of ewes. It was profitable to feed ewes some type of supplement except at the higher levels (groups 5 and 6). The increased feed costs reduced the returns of these groups of ewes. The effect of the level feeding upon production was more evident when the groups of ewes were combined by pairs according to the amount of feed they received as is shown in Table 3.

Ewes in Group 6 fed ⅔ lb. of a 30% protein supplement gained 15.3 lb. during the winter, as compared to ewes in Group 0 which lost 6.7 lb. Ewes in Group 6 weaned 73.4 lb. of lamb per ewe put on experiment, whereas Group 0 ewes weaned 57.3 lb. of lamb. Because of higher winter-

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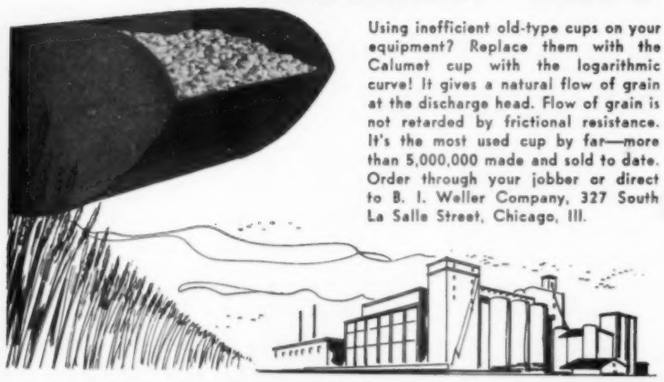

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TABLE 3. Lamb Production and Ewe Weights as Influenced by Feed Level

	Average weaning weight of lambs (lb.)	Average weight gain of ewes (lb.)	Lamb mortality (%)
Groups 0 and 7	60.2	— 5.1	33
Groups 1 and 2	66.6	+ 1.8	34
Groups 3 and 4	72.1	+ 8.6	26
Groups 5 and 6	76.0	+21.7	21

TABLE 4. Effect of Level of Feed and Type of Supplement in Production of Range Ewes (1955-57)

Lot No.	0	1	2	4
Supplemental feed*				
Level of protein, %	0	12	24	12
Amount fed/day, lb.	0	1/3	1/3	2/3
No. ewes per year	100	100	99	101
Winter weight gain of non-flushed ewes				
1955-56	—1.1	5.3	9.6	10.7
1956-57	5.4	10.5	9.6	10.5
Lambs born, %				
1955-56	135.0	131.0	132.3	126.7
1956-57	126.3	119.2	124.8	118.4
Dry ewes, %				
1955-56	2.0	8.0	3.0	3.0
1956-57	0.0	7.1	3.0	0.0
Death loss of lambs to 8 weeks, %				
1955-56	23.6	9.0	11.4	12.9
1956-57	9.1	15.9	10.1	6.4
Pounds of lamb weaned per ewe on experiment				
1955-56	72.2	77.7	82.3	73.1
1956-57	80.2	70.9	77.8	76.8

*The 12% protein supplement was composed of 92% barley and 8% molasses. The 24% protein supplement was composed of 32% barley, 20% wheat mixed feed, 12% soybean oil meal, 2.5% urea, 25% dehydrated alfalfa meal, ½% salt, 8% molasses, and a vitamin D supplement.

ing costs, Group 6 ewes returned 61¢ less per ewe. With lower feed costs and higher lamb and wool prices, it would have been profitable to feed at the higher level. The greatest upturn was made by Group 1 ewes which were fed ⅓ lb. of an 11% protein supplement through the winter.

Ewes in Group 2 fed a straight dehydrated pellet returned about the same as those fed a grain pellet and returned more than some groups fed higher levels of feed.

In 1955, another experiment was started in which the ewes were again divided into eight groups and fed either a 12% pellet or a 24% pellet at various levels and at various times during the wintering period (Van Horn, et al., 1957). Again, these ewes were grazed together on the range and divided into groups for feeding each morning. Data from only 4 groups fed the same amount of feed or protein level are shown in this paper. Group 0 received no supplemental feed; Group 1 received ⅓ lb. of a 12% pellet; Group 2 received ⅓ lb. of a 24% pellet, and Group 4 received ⅔ lb. of a 12% pellet.

Pellet Composition

(The 12% pellet was composed of 92% barley and 8% molasses; the 24% pellet was composed of 32% barley, 20% wheat mixed feed, 12% soybean oil meal, 2.5% urea, 25% dehydrated alfalfa meal, 0.5% salt; 8% molasses and a vitamin D supplement.)

There were approximately 100 ewes in each lot. The preliminary results of two years of this experiment are shown in Table 4. During the wintering period, the weight gain of non-flushed ewes was slightly higher for ewes fed ⅔ lb. of a 12% pellet; however, in both years, ewes fed the 24% pellet gained nearly as much.

The percent of lambs born was highest for the control ewes. However, there were no dry ewes in this group one year. The pounds of lamb weaned per ewe on experiment average for the two years was highest for the ewes fed the 24% pellet.

Wool Data Report

Colman and Drummond (1957) reported on wool data collected in this experiment. They found that ewes in Group 2, fed the 24% pellet containing dehydrated alfalfa, maintained the greatest uniformity of fiber from tip to base. Under ordinary wintering conditions, the fiber diameter becomes much smaller or finer than the portion of the fiber produced during the summer and fall.

Wool from ewes in Group 4 was next in uniformity. There was a significant difference in the uniformity of the fiber diameter between feed treatments during the first year. The trend was definite and consistent the second year, but was not significant.

On the basis of work conducted at the Montana Experiment Station during the past seven years, dehydrated alfalfa has been found to be a worthwhile ingredient in pellets fed to ewes during the winter. When sheep are grazed on range forage during a large part of the wintering period, or when fed low quality roughage, the addi-

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tion of dehydrated alfalfa meal to the ration is important.

A dehydrated alfalfa pellet has proven as satisfactory as a 20% protein pellet when fed to ewes wintered on hay. Breeding and lambing pellets used at the Montana Experiment Station contained 20% dehydrated alfalfa meal.

The value of dehydrated alfalfa meal in supplementing low quality roughage was emphasized by a trial conducted by Stitt, et al. (1954) at Purdue. Ewes fed one pound dehydrated alfalfa meal daily, in addition to ground corn cobs and the basal ration, lost less weight, produced more wool and gave birth to heavier lambs than ewes receiving only the basal ration.

Dehydrated Alfalfa in Creep Rations: Perry, Beeson and Harper, 1957, conducted a creep feeding trial with lambs in which pelleted creep rations containing various levels of dehydrated alfalfa meal were fed. The levels in the creep ration for six lots were 0, 20, 40, 60, 80, and 98%. In addition, 1% bone meal, 0.5% iodized salt and 0.5% of a premix containing vitamins A, D and E were used. Ground corn and soybean oil meal constituted the remainder of the rations.

In this experiment, lambs fed pellets composed of 98% dehydrated alfalfa meal gained as well as lambs fed pellets containing 10% soybean oil and varying amounts of corn. The dehydrated alfalfa meal apparently had 100% corn replacement value, in that lambs grew as rapidly and efficiently on pellets containing higher levels of dehydrated alfalfa meal as those on pellets containing lower levels.

Two other lots of lambs were fed a fortified pellet with one lot fed a pellet containing 40% dehydrated alfalfa meal. These two lots of lambs grew at the same rate; and this rate of gain therefore indicated that dehydrated alfalfa meal apparently had 100% corn replacement value at a level of 40% of the ration for twin lambs.

In the subsequent trial, single lambs were fed a ration with 40 or 98% alfalfa, and a "super pellet" fortified with 10% sugar, an antibiotic, B vitamins, ascorbic acid and trace minerals. Both lots gained significantly more than lambs receiving pellets containing 40% or 98% dehydrated alfalfa meal. These results were contrary to those obtained in the previous trial in which the higher levels of dehydrated alfalfa replaced corn pound for pound.

Weir, Ittner and Myer (1957) conducted an experiment to determine the value of chopped alfalfa versus pelleted alfalfa with and without added barley or chlortetracycline for fattening lambs. A lamb feeding trial and a digestion trial were used. Alfalfa was taken from the same field at the same time.

Lambs fed pelleted alfalfa gained 0.39 lb. per day as compared to 0.30 lb. for lambs fed chopped alfalfa. Lambs fed the pelleted rations made significantly greater gains than lambs fed chopped hay. The addition of barley or chlortetracycline did not significantly increase gains. Dressing percentages and carcass grades were higher for lambs fed the pelleted rations.

Dehydrated Alfalfa in Fattening Rations: Esplin and Story (1957) at Colorado, fed lambs pellets consisting of half corn and either half dehydrated alfalfa hay or half alfalfa hay. The lambs fed the pellets with dehydrated alfalfa ate fewer pellets but gained about as efficiently as lambs fed the pellets with alfalfa hay. The lambs fed the alfalfa hay gained slightly more during the two years of the trial. Carcass grades obtained in 1956-57 trial were approximately equal with most of the lambs grading choice.

In earlier work, Esplin et al. (1951) conducted tests with fattening lambs and showed that those fed dehydrated alfalfa meal gained more than those fed chopped alfalfa hay.

In another Colorado experiment, Connell, Wheeler and Esplin (1949) concluded that adding dehydrated alfalfa hand-fed to a lamb-fattening ration, which included ground alfalfa hay self-fed, resulted in slightly increased gains and greater efficiency of gains when measured in terms of feed utilization. Feeding dehydrated alfalfa at the rate of 0.5 lb. per day gave greater gains than when either greater or lesser amounts were fed.

In a Nebraska test, Harris and Alexander (1952) fed either dehydrated alfalfa meal or ground alfalfa with a grain, soybean meal and corn silage ration and found that the lambs fed dehydrated alfalfa gained faster with less feed than those lambs fed alfalfa hay. Feed costs were less for lambs fed dehydrated alfalfa even though dehydrated alfalfa was priced at $82 per ton as compared to $30 per ton for alfalfa.

Burkitt (1951) conducted tests at the Montana Agricultural Experiment Station and found that 10% dehydrated alfalfa pellets in grain mixtures increased daily gains and that the feed required per 100 lb. of gain was decreased. With dehydrated alfalfa pellets priced at $70 per ton, the lambs fed dehydrated alfalfa returned 93¢ more per head than those lambs fed no dehydrated alfalfa.

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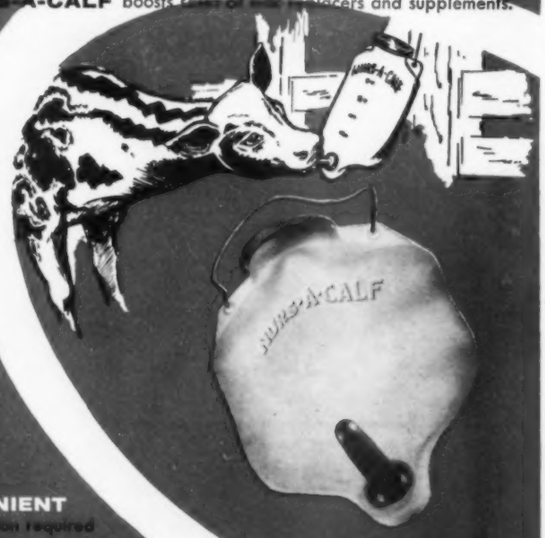

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The Estrogenic Activity of Alfalfa And Other Forages

By Dr. Frederick N. Andrews

Animal Husbandry Department

Purdue University

An estrogen is a substance which is capable of inducing estrus or heat in a suitable female test animal such as the mouse. Estrogens are extremely widespread in nature. Estrogenic activity has been demonstrated in both the ovary and the testis; blood, urine and feces, and in other animal tissues and secretions; in asphalt, coal, peat and petroleum, and in more than 50 species of plants.

The primary source of estrogens in female mammals is the ovary. The ovarian estrogens are steroids in nature and have the same basic chemical structure as the testicular hormone, testosterone.

In 1937 Dodds and co-workers in England demonstrated that stilbene, a much simpler compound than the ovarian estrogens, had estrogenic activity, and from it synthesized diethylstilbestrol, dienestrol, hexestrol and many other estrogens which have a very marked estrogenic effect in man and animals.

The chemical nature of the plant estrogens is not yet fully known, but it is evident that there may be a considerable variety of plant compounds with estrogenic activity.

Prior to 1957 the plant estrogens which had been identified were isoflavones. The flavones and isoflavones are associated with pigmentation in plants and include such well known compounds as osajin, pomiferin and prunetin. Those in which estrogenic activity has been proved are biochanin A, daidzein, formononetin, genistein and genistin.

In 1957 Bickoff et al. at the Western Utilization Research Laboratory of the U.S. Department of Agriculture, isolated a new type of estrogen from ladino clover. This compound appears to be a derivative of coumarin rather than an isoflavone, and has been named coumestrol.

Early Research

The first indication that plants might contain estrogens was presented by Loewe and Spohr in Germany in 1926. Yellow pond roses were shown to have some activity, and the pussy willow bloom was found to be quite estrogenic. It was later discovered that many others such as hops, palm oil, tulip bulbs and sage also contained estrogens.

In 1944, Bennetts observed serious reproductive difficulties in sheep grazing subterranean clover pastures in western Australia. In ewes, infertility, prolapse of the uterus and difficult lambing were observed, and wethers grazing similar pastures showed mammary development and sometimes milk secretion.

Subterranean clover (Dwalganup strain) had been introduced to western Australia from southern Europe in 1930. It proved to be well adapted and by 1944 had become the dominant species in many pastures. It was shown, after the breeding difficulties appeared, that this strain of clover contained two estrogenic isoflavones, formononetin and genistein.

This surprising discovery that a well adapted, high yielding pasture plant sometimes contained sufficient estrogen to produce very undesirable effects stimulated interest throughout the world and prompted the studies carried out at Purdue during the past half dozen years.

As reported by Pieterse and Andrews (1), alfalfa, ladino clover, red clover, birdsfoot trefoil, wheat, rye and oats may contain orally active estrogens. Samples of sweet clover, soybean plant, brome grass, fescue and orchard grass did not contain detectable estrogens, nor did samples of fish solubles, fish meal and dried distillers solubles. Soybean meal and certain samples of moldy corn were estrogenic.

However, the estrogen activity varies widely due to season, stage of growth and climatic factors, and it would not be correct to assume that estrogens might never be present in some of the above materials.

Estrogen in Alfalfa

The estrogenic activity of alfalfa was compared at different stages of maturity in four crops during the spring and summer of 1954. As shown in Table 1 there was considerable fluctuation in estrogen activity at different stages of maturity in the first crop (spring).

The estrogenic activity was determined by refluxing the dried plant materials in ethanol and feeding the extracted material to castrate female mice. An increase in uterine weight is indicative of estrogenic activity. The estimated potency is in terms of a highly potent estrogen, diethylstilbestrol.

The second cutting was somewhat less estrogenic than the first but was most estrogenic in the dough stage, and the third and fourth crops were clearly less estrogenic than the first.

TABLE 1. Estrogenic Activity of Alfalfa at Various Stages of Maturity (First Growth)

Stage of maturity	No. of mice	Mean body wt. gm.	Mean uterine wt. mg.	% Body wt.	Difference of uterine wt. mg.	Av. feed consumption gm.	Estimated potency mcg./lb.
Vegetative	9	23.3	20.0±1.4*	0.086	3.2*	29.8	..
Vegetative	10	22.8	17.7±1.0	0.086	1.3	28.3	..
Vegetative	10	22.9	18.0±0.8	0.079	1.6	28.8	..
Early budding	8	21.1	33.4±2.7**	0.157**	16.6**	23.3	2.6
Budding	10	23.9	21.9±0.7**	0.093**	4.6**	28.3	<0.5
Pre-bloom	10	23.8	22.9±1.8*	0.097**	5.5*	28.8	<0.5
Tenth bloom	10	24.6	22.2±0.9**	0.091**	5.4**	26.4	<0.5
Fourth bloom	10	22.3	30.1±1.5**	0.138**	13.3**	23.0	2.2
Half bloom	9	23.0	32.0±2.0**	0.139**	14.7**	23.1	2.5
Full bloom	9	24.1	38.1±2.6**	0.152**	20.8**	26.7	4.3
Dough stage	8	22.3	34.1±1.5**	0.154**	16.8**	25.5	3.2
Seed heads mature	9	24.3	36.0±2.2**	0.149**	18.8**	24.9	3.9

*P<0.05.
**P<0.01.

TABLE 2. Distribution of Estrogenic Activity in the Alfalfa Plant

	Lot and treatment				
	1 Control	2 Flowers	3 Leaves	4 Stems	5 Entire plant
No. of mice	10	10	10	9	10
Mean body wt., gm.	23.7	24.8	24.2	24.9	24.0
Mean uterine wt., mg.	16.3±0.7	19.8±1.0**	24.1±0.9**	19.0±0.6*	20.5±0.7**
Per cent body wt.	0.069	0.080**	0.100**	0.077	0.085**
Av. feed consumption, gm.	27.3	26.0	25.9	25.9	26.1
Estimated potency (mcg. stilbestrol per lb. dry matter)	...	<0.5	<0.5	<0.5	<0.5

*P<0.05.
**P<0.01.

Leaves More Estrogenic

As shown in Table 2 the leaves were more estrogenic than the flowers or stems. This agrees with earlier studies on subterranean clover.

Samples of suncured and artificially dehydrated alfalfa were obtained from several widely separated areas (2). These individual alfalfas varied from a stilbestrol equivalent of less than 0.5 mg. of stilbestrol per pound of dry matter to 16.3 mg. It was evident that many factors were possibly affecting estrogen content.

In order to characterize some of the variability a study was made of individual alfalfa clones of 56 strains of alfalfa grown at the Purdue agronomy nursery. They were all harvested in the bud stage from the second cutting during July, 1955, and included such common varieties as Ranger, Grimm, Hardigan, Cossack, Buffalo and Viking. The results have been reported in detail by Stob, Davis and Andrews (3). There was a difference of approximately 500% in the effects of the alfalfas on uterine weight, an index of estrogenicity.

Representative samples are included in Table 3.

All of the alfalfa samples were more estrogenic than the control laboratory ration which is low in estrogens but not entirely estrogen-free. There was, however, considerable difference in clones or strains from the same alfalfa varieties. Current studies include variations within individual clones and selection for estrogen content.

Estrogen in Silage

Pieterse and Andrews (4) also showed that alfalfa silage contained significant estrogenic activity, whereas corn or brome grass silages were essentially non-estrogenic. Although there remains much to be known and there is considerable variation between silages, there is strong evidence that in some instances estrogen activity increases during fermentation and may be affected by method of preservation.

Following the demonstration of the beneficial effects of estrogens on poultry carcass quality by Lorenz in 1945, and the improved rate of growth and feed efficiency in cattle and sheep observed at the Purdue Experiment Station in 1948 and 1949, the livestock and feed industries have shown considerable interest in practical ap-

TABLE 3. Uterine Weight Response to Alfalfa Extracts

Alfalfa strain	Mean uterine weight (mg.)
Control ration	17.00
262	18.60
424	23.20
334	26.00
23	27.08
286	28.00
216	30.08
66	34.08
277	41.20
346	41.68
138	99.96

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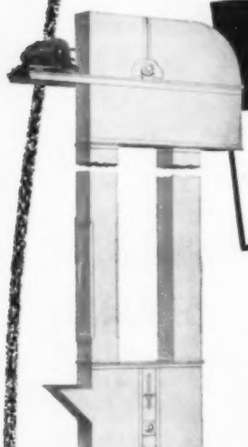

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Lloyd Arnold

SEED EXPERT—Lloyd Arnold, one of the speakers on the program at the annual American Dehydrators Assn. convention at the Broadmoor Hotel in Colorado Springs, Colo., Feb. 7, is shown in front of a seed cleaning plant at Five Points, Cal. The plant is a part of the seed service operation of Arnold-Thomas Co., which grows thousands of acres of alfalfa seed. He will discuss "IVP—What it Means to the Alfalfa Dehydration Industry."

plications. By the end of 1957 the implantation of estrogens or their addition to the feed of cattle, sheep and poultry has become an accepted practice.

The fact that alfalfa and other plants may contain appreciable estrogens is of importance to producers of both plants and animals. Research should be continued to determine if the feeding value of alfalfa is or could be related to its estrogen content, and if the plant estrogens are related to the growth, composition and yields of the plants themselves.

It would be undesirable to produce a plant with as much estrogenic activity as the Australian subterranean clover, but if a level of estrogenic activity could be obtained which would stimulate growth or other functions it could increase the value of the plant. Such studies are now in progress at Purdue.

♥ ♥

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1. Journal of Animal Science, 15:25 (1956).
2. The cooperation of Joseph Chrisman of the American Dehydrators Assn. is acknowledged.
3. Journal of Animal Science, 16:850 (1957).
4. Journal of Dairy Science, 39:81 (1956).

ADA SERVES

(Continued from page 1A)

Alfalfa Abstracts. With the printing of Volume VII a few months ago the Abstracts have grown to 730 pages. Each volume is author indexed, and the table of contents shows such categories as production, harvesting, composition and uses.

This abstract service is widely used by university and experiment station workers and formula feed nutrition folks. Mailing of the most recent volume went to over 200 such people, as well as to our own direct members.

Here is brought together in condensed form as much of the latest published information on alfalfa as our abstracting service is able to accumulate. Hereafter, we hope to publish the abstracts in four quarterly parts for each yearly volume.

Research Conferences

Every other year we join with the Western Regional Research Laboratory in bringing together alfalfa dehydrators, U.S. Department of Agriculture research workers, feed industry representatives, chemists, entomologists, agronomists and biochemists to review some of the most recent research work on alfalfa. It is called a Technical Alfalfa Conference. We propose to make this an annual instead of biannual affair, holding meetings in the Midwest on the even numbered years and still working jointly with the Western Utilization Research & Development Division.

The report of our 1957 meeting in mimeographed form comprised 96 pages and was widely distributed. The subjects discussed concerned recent research in composition, growing, processing and feeding of alfalfa.

The association is very grateful for the long period of mutual helpfulness enjoyed with personnel of the Agricultural Research Service throughout the country. We have a particularly warm feeling of appreciation toward the Western Regional Laboratory which encompasses the forage utilization research.

During the year we attend many meetings. The largest of these from the standpoint of attendance are the American Feed Manufacturers Assn., the American Society of Animal Production and the American Society of Agronomy. The object is to gain information which may be passed on to the users of our product as well as to its manufacturers. The value of attendance is not always in direct proportion to the size of the gathering. Some of the most rewarding and pleasant meetings are to be found among the many nutrition conferences from coast to coast.

It is of utmost importance that we attend the annual meeting of the Association of American Feed Control Officials. This is a very necessary liaison between feed manufacturers, feed ingredient manufacturers, state feed control officials and Food & Drug Administration.

The association is happy to have a voice in the Nutrition Council of the AFMA through its seat on the Allied Industry Association Advisory Committee. This is another means of keeping abreast of the thinking of the leading nutritionists of the country and to present to them the newest developments in our own industrial progress.

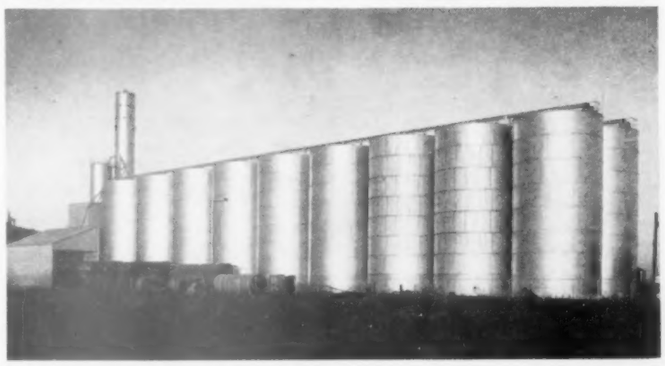
Through the council's liaison with the purchasing agents we are able to more fully inform the buyers of our grades and specifications, our trading rules and code of ethics. We are one of only a few feed ingredient manufacturers with a complete, printed set of trade rules with a built in set of arbitration procedures for settling disputes.

Another way in which we attempt to keep our customers as well as our industry members informed is through the use of editorial space in the many feed trade and consumer magazines.

Among the regular contributions from our Kansas City Office are a page each month in one of the leading feed trade magazines and the annual alfalfa section in Feedstuffs magazine which you are now reading. In addition to these regular items we attempt to write or have written for us, authoritative articles on the subject of alfalfa.

Whenever these are of a type which we think will be of value to feed industry nutrition people or to our own members we provide reprints to them, so that they may keep up to date on recent developments in production of the crop or its many uses.

Our greatest contribution to in-



NEW GAS STORAGE INSTALLATIONS—These two new National Alfalfa Dehydrating & Milling Co. inert gas storage plants are examples of the type of gas storage plants that are going up over the country. Each of the plants pictured here has inert gas storage capacity for 18,000 tons of dehydrated alfalfa pellets and can receive or load out sacked or bulk material in cars or trucks and can regrind pellets. The plant above is located on President's Island, Memphis, Tenn., and the plant pictured in the bottom photo is located at Toledo.

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creased information on the values and limitations of dehydrated alfalfa lies in our own research program which is now in its tenth year.

During this period we have given grants-in-aid to approximately 40 projects in some 18-20 universities or experiment stations. Subject matter of these research projects covers nutrition studies of all species, composition, growing of the alfalfa crop, soil studies, stability and toxicity studies of stabilizers, etc. Something over $200,000 has been spent by the association on its research program. The program is designed to be of assistance to the grower, the dehydrator, the feed manufacturer and the feeder.

In order to have the research work properly evaluated, to judge the worthiness of proposed research endeavors and in general to guide and assist the association in its research endeavors, a research council was established at the beginning of the program and has given invaluable aid.

The council is composed of research men from the academic field and from the feed industry on about a 50-50 basis. We have been extremely fortunate in the high calibre of men who have served us so well over the years. We feel that the feed industry and the feeding public have likewise benefited.

Annual Convention

Our annual convention is usually a forum on the use or production of dehydrated alfalfa. It is at this convention that the research council devotes a full day to consideration of our program and projects. Our convention speakers in the past have dealt with economics, salesmanship, public relations, feeding, agronomy and soil science.

This year a full day is being devoted to dehydrated alfalfa as it fits into the feeding program for four-footed animals. The feed manufacturing industry is well represented on this forum-type program.

We make many surveys, including a monthly gathering of production and inventory figures which are organized into condensed tables by states and areas and returned to the industry members. Well informed producers should be better businessmen.

We conduct a group insurance program for our members allowing their employees to enjoy lower rates through group coverage.

These things we do in addition to our regular office duties of producing a weekly news letter to the membership, called the Bulletin; answering of thousands of inquiries which reach us in the mail and which range from feeding mink to advisability of a new dehydrator installation and the probable cost thereof.

All of these things we do in the hope that association members may be well informed in all phases of the business of growing, manufacturing and marketing their product, so that when we tell the feed manufacturer through our ads that the discriminating buyer seeks out an association member with whom to do business, we are not just "whistling Dixie."

FEEDING FORUM

(Continued from page 1a)

ers, representatives of feed companies and livestock men. They will discuss the latest in nutrition as it pertains to beef, dairy, sheep and swine feeding.

The college men will cover recent experimental work, the feed manufacturers will discuss how the feed industry is using the information and the livestock men will tell how the information is working on a practical basis.

A question and answer period will follow each category.

Lined up for the forum is an outstanding list of speakers. The college men scheduled to speak are Dr. W. M. Beeson, beef nutritionist from Purdue University, on beef; Dr. E. E. Bartley, dairy husbandry professor at Kansas State College, on dairy; Dr. Lorin E. Harris, animal husbandry professor at Utah State University, on sheep, and Dr. Robert H. Grummer, chairman of the department of animal husbandry at the University of Wisconsin, on swine.

Feed industry representatives are Ralph McCall, cattle feed researcher for Quaker Oats Co., Chicago, on beef; Dr. E. H. Bechtel, director of the General Mills, Inc., research farm, Indianola, Iowa, on dairy; Dr. Bartley Cardon, nutritionist for Arizona Flour Mills Co., Phoenix, on sheep, and Robert L. Vohs, Ames (Iowa) Reliable Products Co., on swine.

The livestock men on the program are W. D. Farr, Farr Farms, Inc., Greeley, Colo., on beef; Joe S. Willett, Sinton Dairy Farms, Colorado Springs, Colo., on dairy; Walter Nelson, Warren Livestock Co., Cheyenne, Wyo., on sheep, and Darrell Wilson, Lawton, Iowa, on swine.

The dairy and swine parts of the forum will be held during the morning session Feb. 8 and the beef and sheep discussions will be held during the afternoon.

Outstanding speakers are also scheduled for the Feb. 7 program, the day the convention is called to order. W. A. Donnelly, president of the ADA, will give the opening address, and Joseph Chrisman, executive vice president, will speak.

Another speaker scheduled for the convention program is Jerry Sotola, associate director of Armour & Co. livestock bureau. A professor of animal husbandry 24 years before he joined Armour, he also was director of research for a feed firm.

Also on the convention program is Lloyd E. Arnold, who directs the activities of the Arnold-Thomas Seed Service, Five Points, Cal., a firm which grows certified alfalfas on several thousand acres of land in Fresno County, California.

James Burrell, president of James H. Burrell & Co., Inc., business management consultants in St. Louis, and Alex Dreier, NBC news analyst, will also speak.

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(Final forms close April 1)

FOR THE 1958 ALMANACK

Where your advertising is seen throughout the year by all readers of The Northwestern Miller.

Significant to every advertiser desiring to reach the Feed, Grain, Flour and Baking industries will be the 1958 ALMANACK edition of The Northwestern Miller.

This invaluable reference book will be received by all readers of The Northwestern Miller as a Section Two of the May 27, 1958, issue. The new Almanack will continue and expand the valuable statistical and informational service regarding crops, production, regulations, etc., for which this annual edition serves as an ever-handy "reference library." The exclusive Machol Edge-Index will put the information at your fingertips.

Your advertising message will be seen time and again throughout the year in the Almanack as this indispensable volume will be retained and referred to repeatedly by readers who will be most receptive to your advertising.

Send in your space reservation today and assure yourself ample time in which to prepare your advertising copy, which can be accepted not later than April 1. Use the handy space reservation form below. Mail it today.

Features of the 1958 ALMANACK will be these departments, with their own material, such as

FLOUR: Packaging Laws; Production; Exports and Imports; World Import Duties

GRAIN: Wheat Standards; Corn Standards; Contract Grades; Elevator Capacity

BAKING: State Baking Laws; List of Industrial Movies; List of Baking Schools; Latest Census Data

FEEDS: Rules Governing Feed Trade; Definitions of Grain By-Products; Feedstuffs Analysis Table; Farm Animal Population; State Laws

FOREIGN: Regulations; Bleaching Flour, Self-rising Flour; Packaging

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ALMANACK, Advertising Dept.
The Northwestern Miller
P.O. Box 67
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ADDRESS .....
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SIGNED ..... DATE .....

PROVED ON-THE-FARM VICTOR FEEDS
THE CRETE MILLS CRETE, NEBRASKA Makers of the Lasthoff Grain Co.

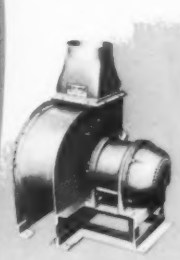
Arbor Acres
Make sure
Your broilers come from ARBOR ACRES females!

INCREASE YOUR PROFITS WITH

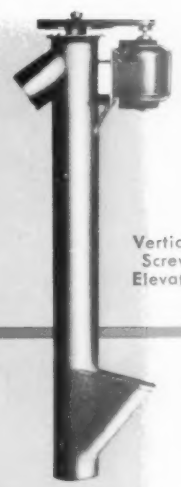
KELLY DUPLEX

DEPENDABLE MILL EQUIPMENT

They give you top service and economy!



Grain Blower & Exhaust Fan

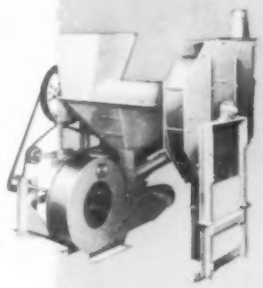


Vertical Screw Elevator

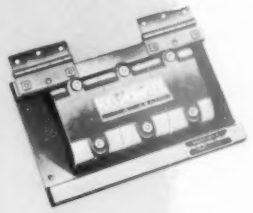
Cob Crusher for making Poultry Litter

Corn Cutter and Grader with Aspirator

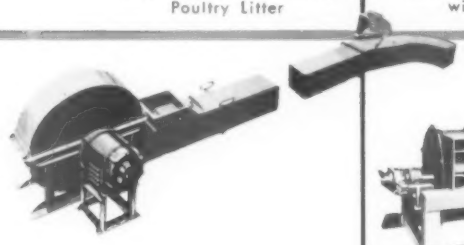
Vertical Feed Mixer ½ to 5 tons



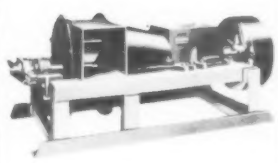
Corn Sheller with blowers for grain and cobs



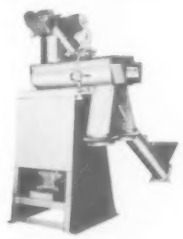
Magnetic Separator protects mill machinery



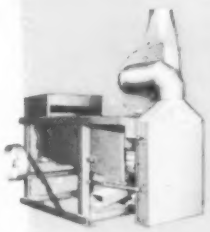
Forced Air Carloader with motor or belt drive



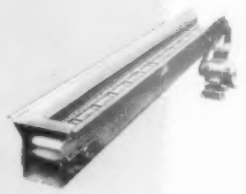
Regular and Pitless Corn Shellers



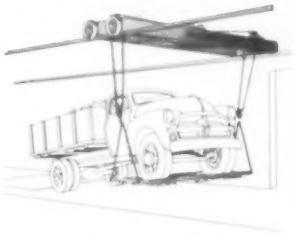
Twin Molasses Mixer



Corn Scalper with or without air cleaner

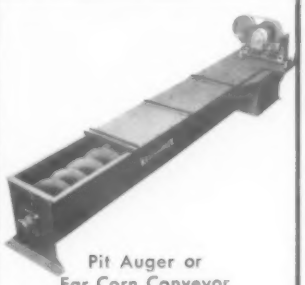


Chain Drag in double and single geared types

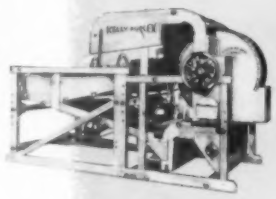


Electric Truck Hoist cuts handling costs

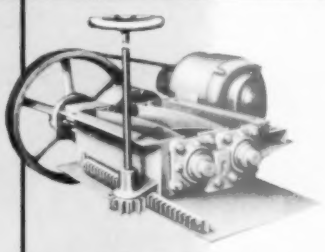
Hammermills 12", 16", 20", 24" sizes



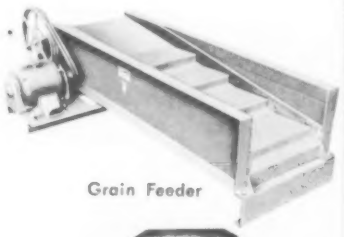
Pit Auger or Ear Corn Conveyor



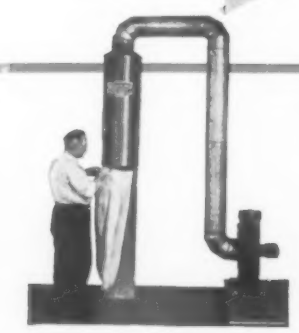
Gyrating Cleaner



Corn Crusher and Feed Regulator



Grain Feeder



Electric Bag Cleaner

every **KELLY DUPLEX** machine is fully

GUARANTEED

We will gladly ship you any Kelly Duplex machine on approval. If it is not completely satisfactory, you are free to return it within 30 days after arrival at destination, by prepaid freight, for refund of full purchase price. In addition, each Kelly Duplex is guaranteed against defects in material and workmanship for 90 days.

The Duplex Mill & Manufacturing Company **Springfield, Ohio**

Check Here!

Yes, I'm interested in the KELLY DUPLEX machinery checked at the right. Please send me full information on these machines without any obligation.

NAME _____ TITLE _____

FIRM _____

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Mail this Card — No Obligation KELLY DUPLEX

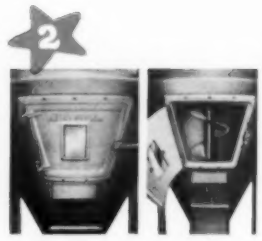
- ☐ Vertical Feed Mixer
- ☐ Hammermill
- ☐ Twin Molasses Mixer
- ☐ Vertical Screw Elevator
- ☐ Electric Truck Hoist
- ☐ Chain Drag
- ☐ Pit Auger
- ☐ Corn Sheller with Blowers
- ☐ Regular Corn Sheller
- ☐ Pitless Corn Sheller
- ☐ Gyrating Cleaner
- ☐ Corn Scalper
- ☐ Cob Crusher
- ☐ Corn Cutter and Grader
- ☐ Corn Crusher—Regulator
- ☐ Bucket Elevator
- ☐ Electric Bag Cleaner
- ☐ Forced Air Carloader
- ☐ Magnetic Separator
- ☐ Grain Feeder
- ☐ Grain Blower
- ☐ Complete Line Catalog

NOW 4 ways better

KELLY DUPLEX
VERTICAL FEED MIXER

NEW MOTOR MOUNT

More versatile because it can be used on either side of the mixer—will accommodate motors of various sizes. More practical because it makes belt take-up easier.



NEW INSPECTION DOOR

Gives you easy, instant access to mixing chamber. Provides an extra inspection window. Makes practical the use of hardened, bolt-on agitators. Available at extra cost.

NEW DUST-PROOF BAGGER

Designed to bring greater ease and efficiency to your sacking operation. Leaves no telltale dust deposits on mixer. Helps keep your mill clean.

NEW HOPPER BOTTOM and bearing housing.

Has bolted construction for easier access to working parts. Saves you time and money when maintenance is required.

It's no secret why—over the years— the Kelly Duplex Vertical Feed Mixer has been such a favorite with feed mill and elevator operators all over the country.

The Kelly Duplex is unconditionally guaranteed to mix more feed with the same power than any other machine on the market—and to produce a mixture so evenly and thoroughly blended that it will stand the most rigid inspection. A complete batch can be loaded, mixed and sacked in less than fifteen minutes.

Constructed of heavy, arc welded steel—the Kelly Duplex completely eliminates feed loss, is practically noiseless in operation, and is so liberally rated that owner after owner reports it will hold up to twice its stated capacity.

Now, with a new motor mount, a new inspection door, a new bagger, and a new hopper bottom and bearing housing—the Kelly Duplex Vertical Feed Miser is 4 ways better than ever before—and, more than ever before, is your one best mixer buy.

For top performance, lower maintenance, greater ease of handling and BIGGER PROFITS, you owe it to yourself to fully investigate this outstanding machine before you buy any feed mixer. Check and mail card today for full details.

Mail the card for complete details

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PERMIT NO. 72
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SPRINGFIELD, OHIO

VIA AIR MAIL

BUSINESS REPLY CARD
NO POSTAGE STAMP NECESSARY IF MAILED IN THE UNITED STATES

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THE DUPLEX MILL & MFG. CO.

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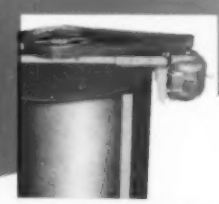
Choice of 4 different drives

Motor drive below floor



Motor drive above floor

Belt drive above floor

Belt drive below floor

Study Fermentation Products in Rations Of Breeding Hens

FAYETTEVILLE, ARK. — University of Arkansas poultry researchers reported recently on a study of the effect of feeding certain fermentation products to breeding hens. Dr. E. L. Stephenson and associates studied the effect of butyl solubles and streptomyces mycelium on egg production, fertility and hatchability of White Wyandotte hens.

The hens were maintained on cane pomace litter under commercial conditions. Levels of the fermentation products tested were 2% butyl solubles, 1% streptomyces fermentation product and a combination of the two.

The researchers reported an improvement in egg production when the streptomyces fermentation product was fed, with a greater response when this product was fed in combination with 2% butyl solubles. A similar complementary response was obtained with reference to hatchability of fertile eggs. The improvements in hatchability were significant whereas those obtained in egg production only approached significance, the scientists said.

A complementary effect on fertility was obtained when the two products were fed together during one season, but this was not apparent in the following season. It was noted, however, that fertility was much better the second season. Perhaps, said the researchers, the factor required for improving fertility the first year was not missing the second year. It may be that litter synthesis of this factor was greater the second year.

Chicks Not Helped By Pepsin Feeding

KNOXVILLE, TENN. — A report from the University of Tennessee tells of research indicating that the baby chick has a well developed proteolytic enzyme system. The feeding of the enzyme pepsin to chicks did not improve growth rate or feed efficiency.

The research was conducted by C. R. Douglas and Dr. R. H. Harms, formerly at Tennessee and now at the University of Florida.

The researchers referred to Iowa State College work in which beneficial results were obtained from adding this enzyme to pre-starter rations for baby pigs. Other Iowa workers studied use of pepsin with chicks and found no beneficial effect.

At Tennessee, two basal diets were used—with soybean meal as the principal source of protein in one and hydrolyzed feather meal supplemented with amino acids as the main source of protein in the other. A crossbred broiler type chick was used.

Addition of pepsin at any of five levels—from .0625% to 1%—failed to improve growth or feed efficiency, the researchers said. The lack of response was unaffected by changing the principal source of protein.

The researchers indicated that these results agree with those of the Iowa State poultry scientists.

NOW...LOAD OR UNLOAD BULK FEED with the PAMCO BULK-BAG BOX

CHECK THESE FEATURES:

- 3 intakes for 3 kinds of bulk feed.
- Minimum breakage of pellets.
- All hydraulic unit with all controls on rear corner of box.
- Pamco engineered swivelling and reversing discharge auger makes it possible to load without detaching auger.
- Swivelling discharge auger raised and lowered hydraulically.
- Each compartment can be unloaded individually. Conversion units can be mounted on your grain box.

for complete information write:

PRODUCTIVE ACRES MFG. COMPANY

KEOTA, IOWA PHONE: ME 63071

Question: Who sells DOW Methionine for healthier, handsomer animals?

Answer:

BOWMAN FEED PRODUCTS, INC.

Holland, Mich.

Read CAPITAL COMMENT In FEEDSTUFFS

Poultry, pets and pelts profit from Dow Methionine

Whether you formulate feed for poultry raisers, dog fanciers or mink ranchers, you can be sure your best feed customers are looking for Dow Methionine in their formulas.

They know the addition of Dow Methionine to their feeds means greater feed efficiency and better development of pets, pelts and poultry.

Broiler and turkey raisers in particular look to methionine-supplemented formulas to speed growth and improve feathering for a profit advantage at market time. Just small amounts of Dow Methionine, one of the most effective amino acids, mean better conversion of pounds of feed to pounds of meat, resulting in feed savings for a satisfied customer.

Dow Methionine works to your advantage, too, by allowing you to capitalize on profitable ingredient buys without sacrificing the efficiency of your feeds. For complete information about how Dow Methionine will help you profit . . . to the advantage of your best feed customers . . . write to: THE DOW CHEMICAL COMPANY, Agricultural Chemical Sales Dept., Midland, Michigan.

WEED AND BRUSH KILLERS, SOIL FUMIGANTS, GRAIN FUMIGANTS, INSECTICIDES, IRON CHELATES, ANHYDROUS AMMONIA, DEFOLIANTS.

Dow presents THE RED FOLEY SHOW *every Saturday. See radio listing for time and station.*

YOU CAN DEPEND ON DOW

DUST RECOVERED is MONEY RECOVERED . . .

Continuous experience in the flour and feed milling industries has proven the cost savings of an "ENTOLETER" SIMON SUCTION FILTER DUST COLLECTOR installation for the efficient collection of dust from grinding and processing operations.

Actual installation view at Lindsey-Robinson

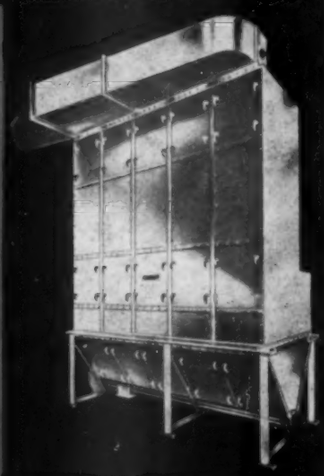
- At the modernized Fair-Acre Mill of Lindsey-Robinson & Co., Roanoke, Virginia the entire cost of an eleven section "ENTOLETER"-SIMON SUCTION FILTER DUST COLLECTOR installation was recovered within two years.
- The installation results in the recovery of over 200 pounds of stock per hour, formerly lost to atmosphere . . . and provides ideal working conditions in a dust-free plant.

ENTOLETER®
SIMON SUCTION FILTER
DUST COLLECTOR

OUTSTANDING ADVANTAGES:

- High air to cloth ratios.
- Only one ½ H.P. motor required for all size units.
- Long filter cloth life.
- All parts easily accessible.
- Minimum floor loading.
- Greater cloth area for unit floor space.

Write for free literature.



ENTOLETER DIVISION
SAFETY INDUSTRIES, INC.
P.O. Box 904 New Haven 4, Conn.

New York Feed Man Builds Goodwill Among Farmers and Boosts Business

By Al P. Nelson
Feedstuffs Special Writer

Walter Goldsmith, owner of Susquehanna Valley Mills, Otego, N.Y., is a feed dealer who studies his customers very carefully to see what they need in the way of feed and other farm supplies. He also makes an attempt to find out their special interests, and this type of policy pays off in greater sales and more satisfied customers.

For example, Mr. Goldsmith believes that many feed dealers do not take the time to make the acquaintance of an important feed buyer on practically every farm, namely, the wife. She it is who often is very eager to learn more about good feeding, and yet so many feed dealers neglect advising her of feed facts. The average farm wife, Mr. Goldsmith finds, often decides which feed dealer is to get the business, and she it is who often keeps the books and decides who gets paid first.

Mr. Goldsmith, on his visits to farmers, makes every effort to become acquainted with the farm wife as well as the farmer. From time to time he takes gifts to the wives of his best customers, and they like this very much. One year he distributed more than 50 one-pound boxes of candy to farm women who were good customers. Another time he distributed fountain pens to them, as well as to the men. One year he bought and distributed flashlights to many of his customers.

Mr. and Mrs. Goldsmith spent last March with their daughter and family in Hawaii. He took 1,000 ft. of colored movies and sent cards to all his customers while he was away. Last summer he gave a party for them in the Otego Central School auditorium, showing his movies and a sound reel of Hawaii donated by an airline. Refreshments were served, and everybody enjoyed the affair. Some are still talking about it, Mr. Goldsmith states.

Mr. Goldsmith, a feed man since his graduation from college in 1920 and former manager for a chain of retail feed stores, says that the cost of the gifts comes from his advertising budget, and is an excellent way to build good will. "Gifts alone won't win over a customer, but gifts, plus quality feed and service does," he says.

He also points out that since relatively few feed dealers do give gifts of this type, he has a goodwill program which is different from most. "It is good advertising for me," he said, "and perhaps it will work equally as well in other communities."

Mr. Goldsmith also has another idea which brings farm and town women to his mill. He sells print feed bags and has quite a volume on them. He sells about 4,000 a year (Percy Kent) and makes a profit of about 10¢ per bag. Women use these bags for square dance and other dresses, pillow cases, aprons, and curtains. "The bags certainly help to build traffic," reports this dealer.

The new, brightly colored bags are hung outdoors on wall hooks where lots of people can see them. This extra display helps sell many additional bags.

Mr. Goldsmith bought the mill and store in 1943. The mill is an old one, dating back to 1797. It was operated by water power for more than 125 years, but recently has been converted to electric power. Mr. Goldsmith makes feed under the brand name of "O-T-GO." "It gives 'em the GO," he says.

Equipment at the mill includes a Blue Streak hammer mill, a 1-ton Eureka mixer and a 1½-ton Howe mixer. Mr. Goldsmith also has a Sprout-Waldron molasses blender and a truck for bulk delivery.

"By making our own quality feed and by using salesmanship and effective merchandising ideas, we stay in a good competitive position," reports Mr. Goldsmith, "I visit my customers as much as I can and have two men at the mill all of the time."

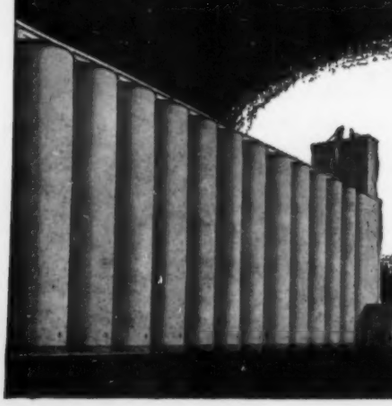
In addition to some newspaper and direct mail advertising, Mr. Goldsmith also has an exhibit at the annual Otego Fair which is very well attended by many rural people.

This dealer also believes that a feed man should never miss out on the opportunity of discussing feeding problems with the successful feeders. The tendency is to believe that the successful feeder doesn't want to talk about a better feeding program, Mr. Goldsmith states. Some dealers devote most of their promotional work to the farm areas where average farmers operate. However, Mr. Goldsmith says, it is the successful farmer who is more interested in better feeding than the average farmer. He finds that by devoting more attention to such farmers, he gets some large sized accounts.

"I always make a point of inviting farmers, one by one, to drop in at my office for a private talk about feeding," he says, "and I find that the successful feeders are more willing to talk than the average or poor feeders."

Successful farmers today know that, with farm prices low, they need to use all available better farming ideas they can get to continue making a profit, Mr. Goldsmith reports, and they count the reputable feed dealer as both a friend and a teacher to help them.

OUR "FORMULA"... for serving the formula feed mixers



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Worth Looking Into

New Products
New Services
New Literature

This reader service department announces the development of new and improved products, new services and new literature offered by manufacturers and suppliers. Claims made in this department are those of the firm concerned. Use the accompanying coupon to obtain the desired information.

No. 5957—Flavor Calculator

Taste Engineering, Inc., announces that its new copyrighted "Tastelation Flavor Calculator" provides "fingertip manipulation to determine the right flavor for the right feed." Suggested levels of use, in ounces, with cost per ton appear automatically. Information on any one of the 35 types of feeds in eight classifications

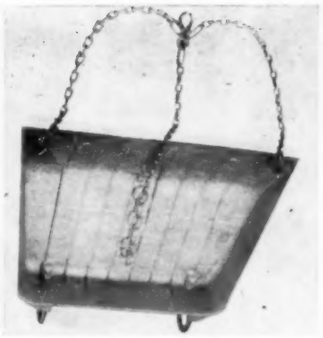
is obtained in one setting. All of the data is based on the 18 regular "Double Strength Powdered Tastelation Liqua-Solid Flavor Compounds." A list of these flavors with price per pound is provided. On the reverse side information on "Tastelation Liquid Flavors" is shown. The calculator is available in conjunction with a new booklet "The Role of Flavors in Feeds" by Card and Stanton, in a flavor kit assembly. Check No. 5957 on the coupon and mail it to secure the kit.

No. 5955—Pink-Eye Treatment

A "Nitrofurazone Puffer" containing a readily soluble 0.2% nitrofurazone powder for use in treating pink-eye in livestock is being produced by Hess & Clark, Inc. Company officials state that the new product "features germ-killing nitrofurazone, one of the Nitrofuran drugs." The nitrofurazone powder is designed for treating pink-eye and other eye infections in cattle, sheep and goats, as well as eye and ear infections in dogs and cats. It is also claimed to be an effective treatment for surface wounds, cuts and abrasions on all livestock and small animals. The nitrofurazone powder is immediately soluble when it contacts the fluid of the eye. It is packaged in plastic "puff duster" containers. Check No. 5955 on the coupon and mail it to Feedstuffs.

No. 5958—Grain Power Shovels

The Aerometal Products & Design Co. has prepared a bulletin explaining the advantages of its magnesium grain handling equipment. These power shovels are cast from light weight magnesium and are claimed to be 5 lb. lighter than the average wooden shovel. Company officials say they are used in ships and rail cars



for unloading grain, midds, bran, linseed meal, pellets, etc. In most cases the original shovels are still in operation having served without extensive maintenance since installation, it is claimed. Secure details by checking No. 5958 on the coupon and mailing it to this publication.

No. 5959—Alfalfa Seed Treatment

Details of a new systemic insecticide made by the American Cyanamid Co. to combat the spotted alfalfa aphid during the early stages of growth in alfalfa fields have been announced. The product, called by the trade name, Thimet, was recently cleared by the U.S. Food and Drug Administration for treatment of alfalfa seed prior to planting, according to Cyanamid. Officials state that this treatment "will control the spotted alfalfa aphid on seedling alfalfa plants for a period up to six weeks after emergence." Later the product breaks down so that there is no residue problem in the hay, it is claimed. Seed which has been coated with "Thimet" germinates and allows the product to be taken by the seedling rootlets into the plant where it remains up to six weeks. After the product's potency disappears, conventional type insecticidal sprays or dusts are suggested. Seeders need to be adjusted when treated seed is used because of the added bulk. Company officials state that leafhoppers, mites and other sucking type pests of alfalfa are also controlled through seed treatment. Details may be secured by checking No. 5959 on the coupon and mailing it to this publication. Please print or type name and address.

No. 5954—Dry Molasses Product

A dry feeding cane all-molasses product is being made available for farm use with the introduction by the North American Trading & Import Co. of "Natico." Company officials say that the product has a 48% invert sugar content and is designed to meet the needs of farmers who desire the benefits of dry molasses to make farm feeds more palatable for beef, dairy cattle, swine and other animals. "Natico" is packed in 50-lb. bags, is granular and free flowing and is completely soluble in water. Check No. 5954 on the coupon and mail it to secure details.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number on the coupon and forwarding it to Feedstuffs.

No. 5881—Disc separators for length separating and sizing, Hart-Carter Co.

No. 5882—Phosphorus availability report, Coronet Phosphate Co.

No. 5883—Magnetic grates, Eriez Manufacturing Co.

No. 5884—Grain cleaner, Dunbar Kapple, Inc.

No. 5885—Unbreakable plastic suckle bottle, Albers Milling Co.

No. 5886—Animal health pack, Chas. Pfizer & Co., Inc.

No. 5887—Control unit for grain aeration systems, Hot Spot Detector, Inc.

No. 5888—Antibiotic mastitis treatment, Whitmoyer Laboratories, Inc.

No. 5889—Device for halting corn shelling operations in emergency, The Andersons.

No. 5890—Nesting material for hens, Hancock Enterprises.

No. 5891—Multiwall foil bags for bulk shipping, Reynolds Metals Co.

No. 5892—Front end loader, Euclid Division, General Motors Corp.

No. 5893—Bulk feed tank, Columbian Steel Tank Co.

No. 5894—Air classifier, MIAG Northamerica, Inc.

No. 5896—Wheat test kit for determining residual cyanide, Compact Air Samplers.

No. 5897—"Impacker" model data sheet, Richardson Scale Co.

No. 5898—Portable vehicle scale, Howe Scale Co.

No. 5899—Pet owners' booklet, Equitable Life Assurance Society of the U.S.

No. 5900—Tie-in "selling tools" for the "Steber" electric brooder, Tobias Enterprises.

No. 5901—Calf creep feeder, Brower Manufacturing Co.

No. 5902—Bulletin on handling the coccidiostat, Nicarb, in the feed mill, Merck & Co., Inc.

No. 5903—Bunk feeder, 10 ft. sections, Siebring Manufacturing Co.

No. 5904—Folder on the use of dehydrated alfalfa in cow-calf operations, American Dehydrators Assn.

No. 5905—Steel-reinforced grain door for boxcars, Acme Steel Co.

No. 5906—Booklet on phosphorus in feeds, Coronet Phosphate Co.

No. 5907—Dynafac research reports, Armour & Co.

No. 5908—Centrifugal type of electrical safety switch for feed mills, Lincoln Industries Co.

No. 5909—Bulk storage system for free flowing materials, Butler Manufacturing Co.

No. 5910—Newcastle - bronchitis

Send me information on the items marked:

☐ No. 5954—Dry Molasses Product
☐ No. 5955—Pink-Eye Treatment
☐ No. 5957—Flavor Calculator
☐ No. 5958—Grain Power Shovels
☐ No. 5959—Alfalfa seed Treatment

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vaccine, Delaware Poultry Laboratories.

No. 5913—Automatic pellet mill requiring no steam, International Machinery Development Corp.

No. 5914—Floor portable bagging scale, Richardson Scale Co.

No. 5915—"Weigh-bin" controls for "packaged" feed processing plants, Daffin Manufacturing Co.

No. 5916—Poultry and hog equipment catalog, Oakes Manufacturing Co., Inc.

No. 5917—Burr mill in stationary and portable models, N. P. Bowsher Co.

No. 5918—"High reach" bulk feed delivery body, Simonsen Manufacturing Co.

No. 5919—"Blow-Thru Feeder" for plant conveying or bulk truck systems, Prater Pulverizer Co.

No. 5920—Mobile feed plant, Mooers Manufacturing Co.

No. 5921—Dynafac film, Armour & Co.

No. 5922—"Bag or bulk" semi-trailer transport body, Henderson Manufacturing Co.

No. 5923—1,000-lb. bulk scale, Burrows Equipment Co.

No. 5924—Engineering report on mixing, Rietz Manufacturing Co.

No. 5925—Silage flavor preservative in packaged form, Flavor Corporation of America.

No. 5926—Vertical mixer bulletin, Seco, Inc.

No. 5927—Conversion kit for seed treating, Panogen Co.

No. 5928—Feedlot bloat product and appetizer, Armour Veterinary Products.

No. 5929—Combination flatbed and tank for hauling bulk products, Fruehauf Trailer Co.

No. 5930—Electrically operated pig warmer, Ritchie Manufacturing Co.

No. 5931—Corn fermentation condensed solubles in chick feeds, Corn Products Sales Co.

No. 5932—Roller mill for cracking, crimping or flaking dry and steamed grain, Roskamp Huller Manufacturing Co., Inc.

No. 5933—Horizontal conveyors for conveying fine, dry materials, Fuller Co.

No. 5934—Multiwall baler bag for export shipment of goods, St. Regis Paper Co.

No. 5935—Dust and products collectors, Sprout, Waldron & Co., Inc.

No. 5936—Methionine as a turkey feed supplement, E. I. du Pont de Nemours & Co., Inc.

No. 5937—Complete feed processing plant bulletin, Sprout, Waldron & Co., Inc.

No. 5938—Booklet on salt in animal nutrition, Salt Institute.

No. 5939—Brochure on fiber grinding equipment, Prater Pulverizer Co.

No. 5940—Dehulled soybean meal with added fat, Standard Feed & Fertilizer, Inc.

No. 5941—Use of antioxidant to control heating in fish scrap piles, Eastman Chemical Products, Inc.

No. 5942—Product to make silage "more appetizing and more nutritious," Kalo Co.

No. 5943—Pig anti-anemia product, Armour Veterinary Laboratories.

No. 5944—Bulk feed bodies, Henderson Manufacturing Co.

No. 5945—Bulletin on heavy duty vertical mixers, Sprout, Waldron & Co., Inc.

No. 5946—Bulletin on mill automation, Richardson Scale Co.

No. 5947—Storing and handling bulk materials, Day Co.

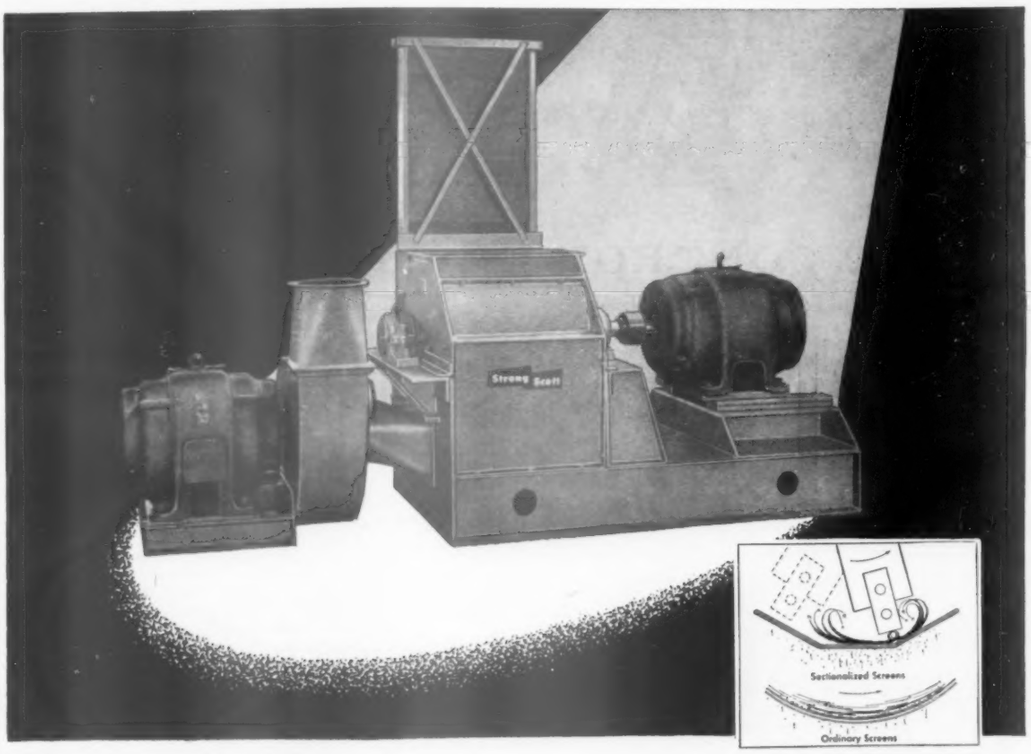
No. 5948—Mill operating manual, Prater Pulverizer Co.

No. 5949—Bulletin describing process pellet mills, California Pellet Mill Co.

No. 5950—Bulletin on chemical composition of meat meal and tankage, American Meat Institute Foundation.

No. 5951—"Twin Mixer" for mixing up to three tons capacity on either dry or molasses feed, Rapids Machinery Co.

No. 5952—Dust filter, Day Co.



Strong-Scott presents a new idea in Hammermill operation

Sectionalized screens offer higher capacities through "Vortex Grinding Action"

The exclusive sectionalized screens in the new Strong-Scott Hammermill assure increased grinding capacities through "vortex grinding action" (see photo upper right).

Specially hardened screens . . .

Because the screens are flat, they can be subjected to a special hardening process and are guaranteed to wear 10 times longer than ordinary curved screens. This drastically reduces your production costs. The special hardening means the perforations retain their sharper edges and original size longer. This produces a more uniform, quality controlled product at a greater capacity for the entire life of the screens.

For your convenience, Strong-Scott maintains a "Production Testing Service," complete with their full line of Grinding, Mixing and Separating equipment. Write to Strong-Scott for full details of this no-cost service.

WITH VORTEX GRINDING, material cannot roll along the surface as on ordinary curved screens. Instead, the shallow valleys made by the joining of the screen sections bounce the material back into the grinding area. This produces an air attrition grinding of particle on particle, in addition to the impact grinding on the hammers, resulting in higher tonnages per hour.

REMOTE CONTROL SCREEN CHANGE—Only the new Strong-Scott Hammermill offers quick-changing up to seven screens from a remote location elsewhere on the floor above. Also, reversible rotation in this Hammermill adds to the long life of the screens.

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"We Have Our Own Integrated Plan"

By L. N. Thompson

General Manager
Poultry Producers of Central California

Talk of business integration is heard throughout the land. Over 90% of the broilers and only slightly fewer turkeys are raised on integrated or guaranteed plans. In some areas integrated plans are now being offered to egg producers.

Poultry Producers of Central California (PPCC) has had many elements of an integrated plan in its operating program for many years though we never have called it by that name. For example, we (1) supply members with feed and other farm production supplies, (2) help members finance production costs through our credit union, (3) help members increase production and improve quality, and (4) provide members with an assured market for all the eggs they produce 365 days of the year.

In many integrated plans there is also a guarantee which may apply to income or price, or a combination of these factors. These features, we feel, are undesirable because they tend to insulate the producer from the normal effects of supply-and-demand circles and reduce him to an employee status.

We want our members to preserve their independence. To this end, we help them obtain production supplies and necessary sound credit, and provide marketing services at cost. We do not guarantee them a profit, but we place in their hand the tools they need to aid them in obtaining a profit.

Feed Operations

PPCC has been handling feed and other farm production supplies for members since 1926; feed has been the major item.

Feed now is manufactured in five mills and distributed through about 50 branches to some 10,500 member patrons. In 1956, 281,120 tons of feed with farm supplies and petroleum represented a gross business volume of $26 million. Net operating gains were $2,643,540, representing a savings to members of 12.93% on poultry mixed feeds, 9.9% on dairy feeds, 4.9% on grains, 4.5% on petroleum products and 10% on farm supplies.

In recent years more and more members have adapted their feeding operations to bulk handling. Mixed feed tonnage delivered in bulk in 1956 represented 29% of total feed volume, an increase of about one third over the previous year. With the completion of bulk bins, all of our major mills are now equipped to handle the delivery of bulk mixed feeds on an efficient and economical basis.

Feed quality control is a very important phase of our program. Field and battery feeding trials to determine product value are a continuing program.

All our mills are now equipped to introduce additional fat into mixed feeds. Much emphasis has been given of late to the energy content of feed. It is said that when energy is increased, feed consumption decreases and that better feed conversion is obtained. Through our feeding trials we endeavor to determine quality and efficiency of various types of feed mixtures.

In addition to feeds, members may purchase from PPCC a wide range of farm supplies. Principal items include aluminum roofing, fencing materials, refrigeration equipment, tires and batteries, drugs, and insecticides. Petroleum products of a major oil company are distributed on a cooperative basis to our members by special agreement.

Credit Union

Although the cooperative extends to qualified members a 30-day credit term, many of them still have need for additional credit.

To provide farm production financing beyond this 30-day accommodation credit, we use the resources of the Poultry Producers Federal Credit Union. This credit union now has over $1 million in capital and about $1¼ million in loans to some 500 members. The million dollars of capital, for the most part, represents money which PPCC members and employees have saved and invested in the credit union. From time to time the cooperative also has invested small amounts in credit union shares. The Poultry Producers Federal Credit Union is eligible to rediscount farmers' notes with the Federal Intermediate Credit Bank when additional lending funds are needed.

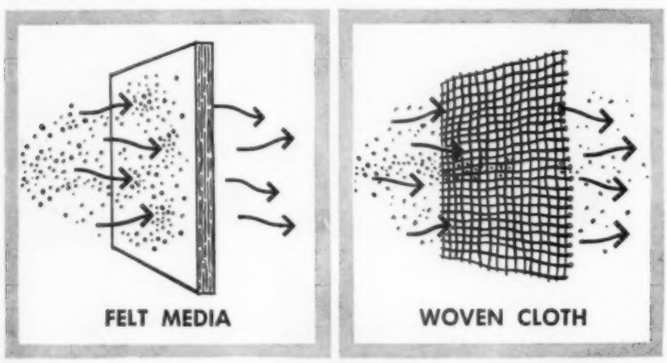
Laying hens take six months to come into production, broilers take about 10 weeks, turkeys several months, before they are ready for marketing. The credit union will advance sufficient funds to eligible members to cover the cost of all feed or medications purchased from the association to bring such birds to production or marketing. Loans usually are secured by chattel mortgage on the flocks and are repaid at the time of sale, or over the productive life of the birds in the case of layers. The credit union will also advance to eligible applicants the full cost (without down payment) if requested for installation of bulk bins, egg cleaners, refrigerating units, or other approved equipment items to improve the efficiency and productivity of a ranch. We consider eligible applicants to be those with some experience plus some equities in their operation. Loans are simple to arrange and applications may be completed quickly at any of our branches. Long term loans covering capital additions or ranch expansion are not undertaken.

Such production credit, coupled with the 30-day open account privilege, forms an excellent type of farm credit for members. Interest charged is a fraction over ½ of 1% a month on the unpaid balance for poultry and turkey and bulk feed bin loans with one third down payment; 1% a

EDITOR'S NOTE: The Dec. 28 issue of Feedstuffs, with industry outlook information, included an article on the impact of contract farming and integration on the feed industry. The author, Earl Crouse of Doane Agricultural Service, said that some "must reading" for feed men was an article in "News for Farmer Cooperatives," published by the Farmer Cooperative Service of the U.S. Department of Agriculture. This was an article by L. N. Thompson, general manager of Poultry Producers of Central California, San Francisco. Mr. Thompson described and commented on his cooperative's operations through which members "receive feed, supplies, financing and egg production help, and an assured market." His article is reproduced here.

DAY

DUST CONTROL NEWS



Here's why felt filter media traps dust BETTER!

This magnified view of filter media makes it easy to see why felt is more efficient than woven cloth. With cloth, the average opening between thread strands is above 10 microns. Felt, however, is made up of closely matted fibres and the air travels a tortuous path between the thousands of individual fibres. For all practical purposes, the resistance of these media is the same. That's why felt filtering media (wool or synthetic) is used exclusively in *all* filters made by DAY.

Consider this important fact. What happens when these two media are cleaned? Woven cloth is cleaned by shaking, rapping or low velocity reverse air. In many cases woven cloth is overcleaned, permitting leakage until openings between strands are again plugged with dust. The overall performance is one of erratic back pressure and filtering efficiency. *With DAY filters the porosity of the felt media is maintained by automatic counter flow air. Back pressure doesn't vary and peak filtering efficiency is constantly maintained.*

Whether your problem is collecting and recovering valuable dust or controlling dangerous or obnoxious dust; write for our free bulletin "DUST FILTER FACTS." Read this bulletin carefully before you decide on any dust filter. It contains useful charts and air engineering data. It also contains more information about the many services and equipment available from DAY. Write toDAY for Bulletin F-75.

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month for feed bin loans with no down payment, and for unsecured loans; and 6% a year on loans secured by Capital Fund Certificates of PPCC. Dividends of 4% have been paid on credit union shares in recent years.

Marketing Services

PPCC owns and operates nine packing plants where eggs are received, candled, graded and packed. In the very near future, though, all candling and packing will be done in two plants, one at San Leandro and the other at Sacramento. The association owns a fleet of refrigerated trucks for ranch pickup and for movement of eggs from packing plant to market. Experienced salesmen maintain daily contact with egg markets and egg buyers throughout our marketing area.

Total dollar volume of egg sales in 1956 amounted to $27,076,191. Sales were made to approximately 3,800 accounts, principally retail stores throughout our northern and central California operating territory. Although we emphasize the sale of "Nulaid" cartoned eggs through retail stores, we also distribute eggs through many other channels, including restaurants, hotels, hospitals, dairies, railroad and steamship lines; city, county, and U.S. government institutions, including the Armed Forces; and wholesalers in export and domestic markets.

The success of any egg marketing program depends to a large extent upon its ability to deliver to the consumer a high quality egg. With this fact ever in mind, PPCC has incorporated into its market activities an egg quality control program. This program begins on the farm and follows the eggs through the packing plant and into the retail store. Clean eggs, uniform quality, refrigeration—are watchwords all the way.

The techniques of our egg quality control program on the farm were established in cooperation with the College of Agriculture of the University of California. It has been demonstrated that farm management practices play an important part in the production of uniform quality eggs throughout the year. These include: Use of quality controlled feeds; brooding several times a year; disease control; keeping nests clean; gathering eggs several times a day; and cooling as quickly as possible in order to retard dissipation of carbon dioxide gas that is present in a freshly laid egg.

PPCC not only helps to inform producers on quality control practices; it encourages producer members to adopt such practices by making available to them quality controlled feeds, disease control medications, and mechanized refrigeration equipment for egg cooling rooms. Furthermore, egg marketing is handled in a way that puts a premium on high quality eggs. Each year, more and more of our members qualify for these premium prices.

Eggs are picked up at the farms at least twice a week and hauled to the packing plant in refrigerated trucks. At the plant the eggs are candled, cleaned, graded, packed, and moved to markets as quickly as possible in refrigerated trucks.

In the retail store our eggs are sold under our cartoned brand "Nulaid" which for many years has commanded market preference as a consistently advertised, quality product.

This program has enabled PPCC to grow into one of the largest and strongest egg marketing cooperatives in the world.

Production Practices

PPCC carries on a continuous educational program, keeping members informed regarding new and improved practices in the poultry industry. Fieldmen advise with producers concerning feeding, brooding, housing, disease control, and general flock management. Poultry production scientists and marketing specialists from the State Agricultural College, State Department of Agriculture and elsewhere, are invited to speak at membership meetings. Each month "Nulaid News"—our membership publication—carries a series of articles on recommended production and marketing practices.

In this way the results of research work in state agricultural experiment stations and in our own laboratory are passed along to producers as quickly as possible. Production practices of our most successful poultrymen are noted also and passed along to other producers.

This program of information unquestionably has helped our producers standardize production, improve quality and increase returns from their poultry enterprises.

Summary: Poultry Producers of Central California has provided its members with high quality production supplies, necessary credit and marketing services, and has returned $27 million in feed patronage refunds and egg deferred payments over the last 10 years. Patronage refunds on feed alone in 1956 amounted to $9.40 per ton—a feature not found in most other integrated plans. To have foregone these refunds on feed purchases would have been a high price for members to pay for some type of guarantee.

As stated at the beginning of this article, we do not include guaranteed prices in our integrated plan because we feel this would not be in the best interests of producers. In speaking at our last annual meeting, Robert A. Shone, president of PPCC, said:

"In talking to poultry meat bird producers who participate in these integrated finance plans (plans that include a guaranteed price), I have yet to find one who believes they have been good for the industry. It is generally agreed that wholesale financing has contributed to overproduction and has resulted in long periods of oversupply and lowered prices during the last year or so.

"According to recent reports, efforts to extend this integrated type

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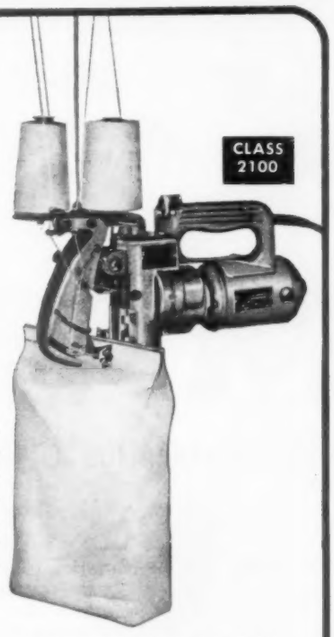
A. WARE BOSWORTH

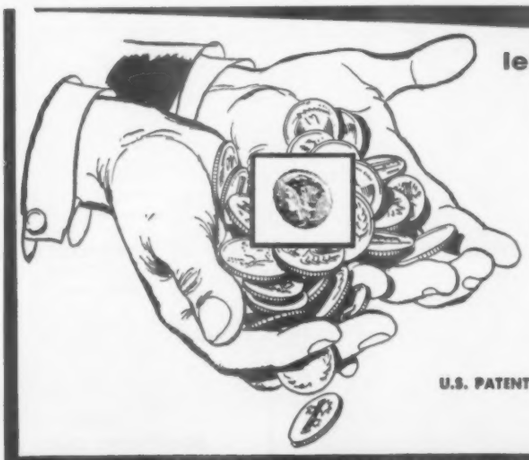
NEW! Portable Electric Bag Closing Machine



HERE is a handy little machine that makes bag closing fast, easy, and economical. It is recommended where operations are limited or intermittent and do not justify installation of large, high production machines.

- **LIGHTWEIGHT**—9½ pounds. Carry it anywhere. No installation; requires only an electrical outlet.
- **POWERFUL**—Exclusive top and bottom feed for greater power and production. Direct drive motor with thumb control button.
- **VERSATILE**—Closes bags made of cotton, burlap, jute, multiwall paper, laminated paper. Produces two-thread stitch Type 401, or can be furnished to produce single-thread chain stitch Type 101.
- **SAFE**—Anyone can operate it. No special training required. Can be obtained with overhead suspension. Also, can be supplied with pedestal bracket. Send for descriptive literature.

Union Special® MACHINE COMPANY
Originator of Filled Bag Closing Machines
413 North Franklin Street Chicago 10, Illinois



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HETROGEN K IS ALWAYS EFFECTIVE AND RAPIDLY ABSORBED because it is THE WATER SOLUBLE VITAMIN K.

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of financing into the field of egg production and marketing have not met with the results experienced in broiler production. However, if this trend is what producers want, or find it necessary to buy this sort of 'complete package,' it will mean that our cooperatives must gear themselves accordingly. Cooperatives are the natural medium for integrated service to producers. Our own association has been 'integrated' for years—through egg marketing and feed and farm production supply services performed for members. I believe our ability, as egg producers, to compete under this 'package deal' method, should it come to that, would be very good, especially in view of the fact that in our association all margins, or earnings, are returned to us, as patrons, in turn enabling us, as producers, to receive our feed and other supplies at cost."

We hope that PPCC is never forced to adopt one of these "package deal" schemes; we still believe that our function is to provide the best possible market for our members' eggs, to provide the best possible production supplies at the lowest possible cost, to keep members informed regarding good production practices, and to contribute to members' financial soundness through patronage refunds.

To members who are interested in guaranteed profits, we say, "Beware of men bringing gifts." There are better ways of getting the job done —ways which do not rob the producer of his independence, or flood the market with an oversupply of eggs.

B. Clyde Angell

JOINS ADM—B. Clyde Angell, Quincy, Ill., has joined the sales staff of Archer-Daniels-Midland Co.'s central feed division, it is announced by Robert Pevahouse, division sales manager. Mr. Angell has been associated with the feed industry for the past 10 years. He will represent Archer Booster Feeds in the west central Illinois area. Before joining ADM, he was a salesman for Murphy Products Co., Burlington, Wis., and for A. E. Staley Co., Decatur, Ill.

More Western Eggs In East Noted

ITHACA, N. Y.—There are an increasing number of "very fine eggs" moving into eastern markets by refrigerator truck from as far west as Iowa and Minnesota.

This was pointed out recently by John Huttar of the Cooperative G.L.F. Exchange in commenting on the egg market in the eastern area.

"The trip takes only 48 hours," Mr. Huttar said. "This is something we will have to continue reckoning with."

He was noting a decrease in the New York egg market and said: "If New York City could be isolated from anything west of Pennsylvania, there probably would have been no drop. No real surplus of nearby eggs is in sight. Western eggs, however, are plentiful."

Speed chick growth, lower feed costs with

NEW
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CORN FERMENTATION CONDENSED SOLUBLES

MAZOFERM Corn Fermentation Condensed Solubles, extracted from corn in the steeping process, contains water soluble unidentified chick growth factors, which are amplified by the fermentation process in Mazoferm production.

MAZOFERM significantly increases the growth rate of chicks on rations containing adequate levels of fish and whey factor ingredients. (Experimental rations have included the ANRC, NECC Rations, and several commercial rations.)

MAZOFERM is an exceptionally rich source of whey factor activity. Mazoferm permits complete replacement of fish solubles or 50% replacement of fish meal.

MAZOFERM increases pellet hardness by 10–20%.

MAZOFERM is an economical source of unidentified chick growth factors. Its use enhances dollar returns over feed cost by $25 to $30 per 1000 broilers.

PALATABILITY TESTS with feeds containing Mazoferm have shown decided chick preference for feeds containing Mazoferm.

Our new 28-page booklet summarizes experimental data covering three years' work. Write for your copy today.

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TWENTY EXTRA BROILERS FROM EVERY TON OF FEED!

That's what your broiler growers can expect when they use feed fortified with **FERMACTO 400**, Borden's exclusive blend of fermentation products. Tests have *proved* that modern poultry rations, built around Borden's **FERMACTO 400**, *are actually producing up to seventy pounds more meat per ton of feed.* So, with ten-week-old birds consistently averaging 3½ pounds and better, that's just like marketing twenty birds *more* than you started out with!

All indications are that broiler production will remain high this year, making *cost of production* the poultryman's guide in selecting his feeding program. With Borden's **FERMACTO 400** in your broiler rations, you will not only *hold* business . . . you'll get *new* business . . . profitable, trouble-free business . . . from profit-minded broiler growers.

We'll be glad to send you the story of Borden's **FERMACTO 400** . . . what it is . . . how you use it . . . what it will do for your broiler feed tonnage.

Write to us today, or see your Borden representative next time he calls!

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Laboratories and test farms at Elgin, Illinois

UP OR DOWN?

By Leonard W. Schruben
Agricultural Economist, Kansas State College

Relation Between Corn and Milo Prices

Corn and milo prices are directly related by virtue of their ability to substitute for many uses. Because they compete for inclusion in livestock rations as well as other uses, there always is economic pressure to keep them in line. But you should not fall into the habit of thinking that prices will be in line at the time you buy—you do not necessarily purchase on an "average" market.

Comparing ingredient costs is a familiar practice by feed manufacturers. It is in this area of supplying ingredients where they can provide an efficient service. Because of this we have prepared Exhibit 1, which shows a summary of corn and milo prices at Kansas City.

There are three solid lines shown on Exhibit 1. One is the mean-ratio of the market price of corn (No. 3 yellow) and milo (No. 2 yellow) at Kansas City. This average is for the period 1932-1953 and is an annual average for the crop year beginning in October.

It is this actual-price ratio line that pictures the relationships which have prevailed in the past. It shows that for the period considered, milo was priced somewhat higher than corn on a per pound basis. Of course, this relationship has changed the past few years and milo has been priced substantially under corn on a per pound basis much of the time.

One of the two other lines pictures relative price relationships assuming prices were established on the basis of feeding to dairy cows or lambs while the remaining one is comparable when feeding beef cattle or hogs.

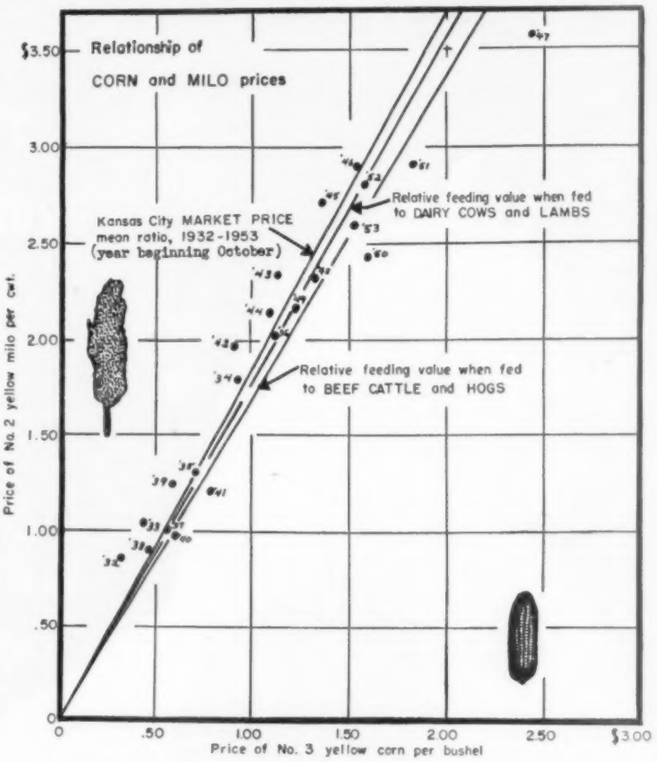
Prices realized in the market do not always match any of these indicators. This is illustrated by the dots on the chart. For example, consider the dot representing 1947 (it has a '47 beside the dot). It shows corn prices to have averaged well above comparable feeding value of milo that year. On the other hand, during 1945 milo averaged below the comparable value of corn.

Here is how the dots were located: First, find the average price of corn on the bottom scale. Then read directly above this point even with milo price on the vertical scale. Each dot represents the season's average price. As you can see, there has been variation from one year to the next.

The extremes, of course, represent economic pressure points tending to bring prices back into line. Currently a project is underway at K-State designed to measure the intensity and frequency of these pressure points.

You can anticipate price pressures by using Exhibit 1. At any given time locate the prices of corn and milo on the chart. If the intersection point is very far from the 3 solid lines, economic pressure is being applied to bring the prices into line. The farther this intersection is from the solid lines, the greater is the pressure.

EXHIBIT 1. Relationship between corn and milo prices, Kansas City, 1932-53.



North Carolina Reports Feed Tonnage Increase

RALEIGH, N. C.—A 6% increase in feed tonnage shipments was reported in North Carolina for the first five months of the 1957-58 fiscal year over the same five months a year earlier.

Reporting on the period from July through November of 1957 as compared with the same period the preceding year, the North Carolina Department of Agriculture said the total was 543,325 tons for 1957 and 510,105 for 1956.

An increase was noted for each of the months. Totals were as follows with the 1957 tonnage listed first: July, 101,977, 94,120; August, 109,453, 103,796; September, 102,826, 92,550; October 119,002, 113,457; November, 110,067, 106,182.

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Supplies: Vitamin B_{12} activity, live yeast digestive enzymes, B complex vitamins, plus other potent unidentified factors. Improves appetite, digestion (including rumen aid), health, growth, production. Increases feed utilization — lowers feed cost.
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A large double agitator unit for big-volume feed manufacturers is built in many different sizes with capacities up to 60 tons per hour. A small edition is made for the custom mixing of crimped oats, flaked grain, and feeds that might be unsuitable for the action of high-speed mixers.

Molasses control equipment, pumps, and inclined screw feeders are available. Sprout-Waldron also offers a complete line of high-speed agitators for cold molasses mixing. *Get full details now!*

Sprout-Waldron Small Double Agitator (Write for Bulletin 111)

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FE/444

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Purina Dealer Morton Williams...

service is his profession

When Morton Williams is called on to list his occupation, he undoubtedly puts down "merchant" . . . or the equivalent. We proudly claim him as our feed dealer. Both classifications, however, are inadequate. Both tell only a part of his story.

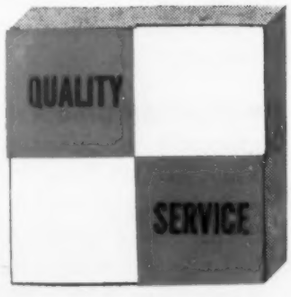
Purina has been doing business with Morton Williams for 18 years. We know he is successful. However, his success was built only partially during regular store hours.

Town and farm people in and around Hopkinsville, Kentucky, know Mr. Williams as a good citizen. Both his business hours and his non-business hours are *service-minded.*

Farm folk buy feed and supplies at the Pierce and Williams Purina Dealership because their needs are always anticipated. The store is truly a one-stop center for Purina Chows, Purina Health Aids, farm supplies, chicks, grinding and mixing, seeds, fertilizer and custom spraying.

But, equally important, Morton Williams contributes heavily to community life and welfare. He is a deacon, trustee and Sunday school superintendent in his church, director of his bank, a past president of the local Chamber of Commerce, a director of Christian County Livestock Improvement Association, a trustee of Bethel College, and an active member of the County Farm Bureau and the local Rotary club.

True, Morton Williams' occupation is "feed dealer" . . . but his *profession* is "service." It is men like Morton Williams who bring honor and success to this business of building a better more profitable animal agriculture.



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CONVENTION CALENDAR

New Listings

For the convenience of readers who scan the Convention Calendar regularly for new listings, those added to the column in the current week appear ahead of the ones which have been entered previously. The following week they will be moved to their proper slot where they will remain until the event is held.

• • •

June 26-28 — Delmarva Chicken Festival; Denton, Md.; chm., John Asher, R.F.D. No. 2, Box 35-A, Georgetown, Del.

Sept. 25-26 — Arkansas Formula Feed Conference; University of Arkansas, Fayetteville, Ark.; chm., E. L. Stephenson, Department of Animal Industry.

Oct. 16-17 — Oklahoma Formula Feed Conference; Oklahoma State University, Stillwater, Okla.; chm., Rollin Thayer, Poultry Husbandry Department.

• • •

Feb. 3-4 — Cottonseed Processing Clinic, USDA; Southern Regional Research Laboratory, New Orleans, La.; chm., Dr. C. H. Fisher, director, P.O. Box 7307, New Orleans 19, La.

Feb. 3-5—Association of Southern Agricultural Workers; Hotel Marion, Little Rock, Ark.

Feb. 4-5 — Hoosier Turkey Trot, Purdue University Memorial Union, West Lafayette, Ind.; chm., Prof. Roy E. Roberts, extension poultryman.

Feb. 6-7—New Hampshire Poultry Health Conference; University Memorial Union Bldg.; chm., Richard Warren, extension poultryman, University of New Hampshire, Durham, N.H.

Feb. 6-7—Oregon Animal Industry Conference; Oregon State College, Corvallis, Ore.; gen. chm., Fred West, Oregon Feed & Seed Dealers Assn., college chm., Dr. J. E. Oldfield, Department of Animal Husbandry.

Feb. 6-8 — American Dehydrators Assn., Broadmoor Hotel, Colorado Springs, Colo.; exec. v.p., Joseph Chrisman, 430 Board of Trade Bldg., Kansas City 5, Mo.

Feb. 10-11 — Montana Nutrition Conference, Montana State College, Bozeman; chm., Dr. O. O. Thomas, Department of Animal Husbandry.

Feb. 12—Mutual Millers and Feed Dealers Assn. winter convention; Hotel Statler, Buffalo, N.Y.; sec.-treas., Mrs. G. A. Bentley, 41 Chautauqua Ave., Jamestown, N.Y.

Feb. 13-14 — Utah Feed Manufacturers & Dealers Assn., Convention and Nutrition Conference; Utah State University, Logan, Utah; sec., Dr. J. O. Anderson, Utah State University, Logan, Utah.

Feb. 13-14 — Washington State Feed Assn.; Chinook Hotel, Yakima, Wash.; sec., J. G. Wilson, 814 Second Avenue Building, Seattle, Wash.

Feb. 14-16—Institute of American Poultry Industries Fact Finding Conference; Municipal Auditorium, Kansas City, Mo.; sec., Dr. Cliff D. Carpenter, 221 N. LaSalle St., Chicago 1, Ill.

Feb. 17-18—New Mexico Feeders Day; New Mexico A&M College, Las Cruces, New Mexico; chm., Dr. J. H. Knox, Department of Animal Husbandry.

Feb. 21—National Feeder Finance Credit Group, Curtis Hotel, Minneapolis; sec., Rubert Lindholm, 502 Thorpe Bldg., Minneapolis, Minn.

Feb. 23-25 — Ohio Grain & Feed Dealers Assn.; Commodore Perry Hotel, Toledo, Ohio; sec., G. E. O'Brien, Ohio St., Greenville, Ohio.

Feb. 23-25 — Colorado Grain, Milling & Feed Dealers Assn.; Shirley-Savoy Hotel, Denver; sec., R. B. Kelley, 714 Cooper Bldg., Denver 2, Colo.

Feb. 24-27 — Colorado Livestock Days; Colorado State University, Fort Collins, Colo.; sec., Dr. Sherman S. Wheeler, director of the experiment station.

Feb. 25-26 — Virginia Polytechnic Institute Nutrition School for Feed Men; Hotel Roanoke, Roanoke, Va.; chm., Paul M. Reaves, professor of dairy science.

Feb. 26-28—Midwest Feed Manufacturers Assn.; Muehlebach Hotel, Kansas City; exec. v.p., Lloyd S. Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

March 12—Distillers Feed Conference; Sheraton Gibson Hotel, Cincinnati, Ohio; exec. dir., Lawrence E. Carpenter, 1232 Enquirer Bldg., Cincinnati 2, Ohio.

March 13-14—Oregon Feed & Seed Dealers Assn.; Multnomah Hotel, Portland, Ore.; sec., Fenn Emerson, Albany, Ore.

March 20-21—University of Maryland Nutrition Conference, Shoreham Hotel, Washington, D.C.; Dr. G. Lynn Romoser, Department of Poultry Husbandry, University of Maryland, College Park, Md.

March 24-25—Arkansas Beef Study Day; University of Arkansas, Fayetteville, Ark.; chm., Dr. C. J. Brown, associate animal husbandman.

April 8—Purdue Egg Day; Purdue University, Lafayette, Ind.; chm., David D. Jackson, extension poultryman.

April 8—New Hampshire Poultry Growers Assn.; Memorial Union Bldg., University of New Hampshire, Durham, N.H.; sec., Richard Warren, extension poultryman.

April 10-11—Poultry & Egg Na-

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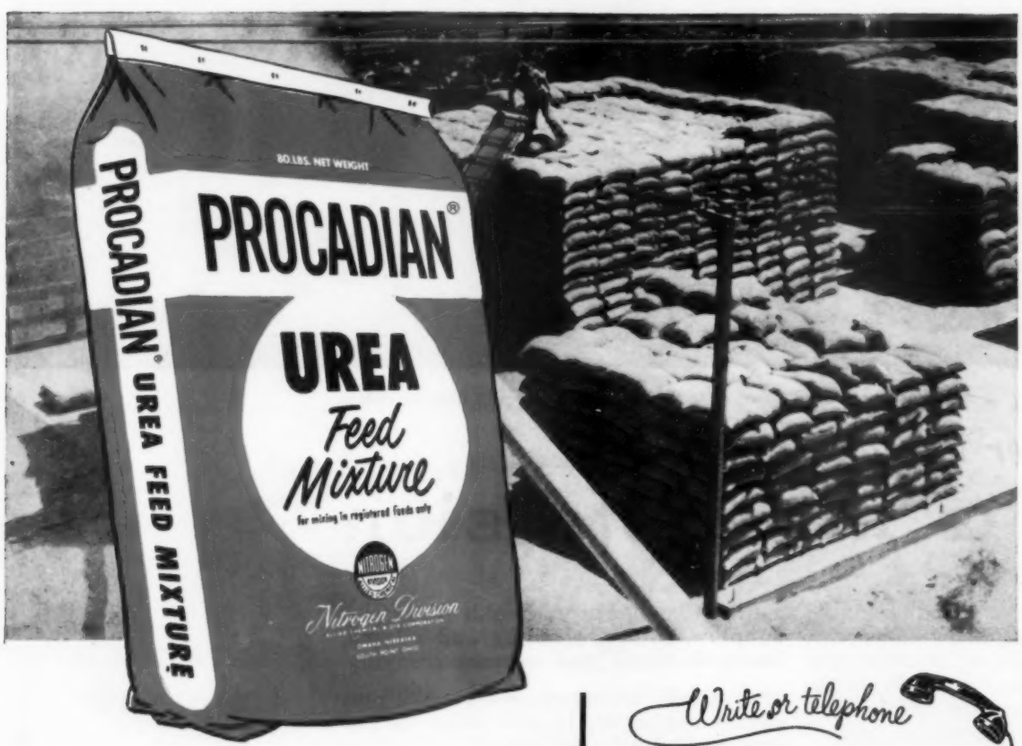

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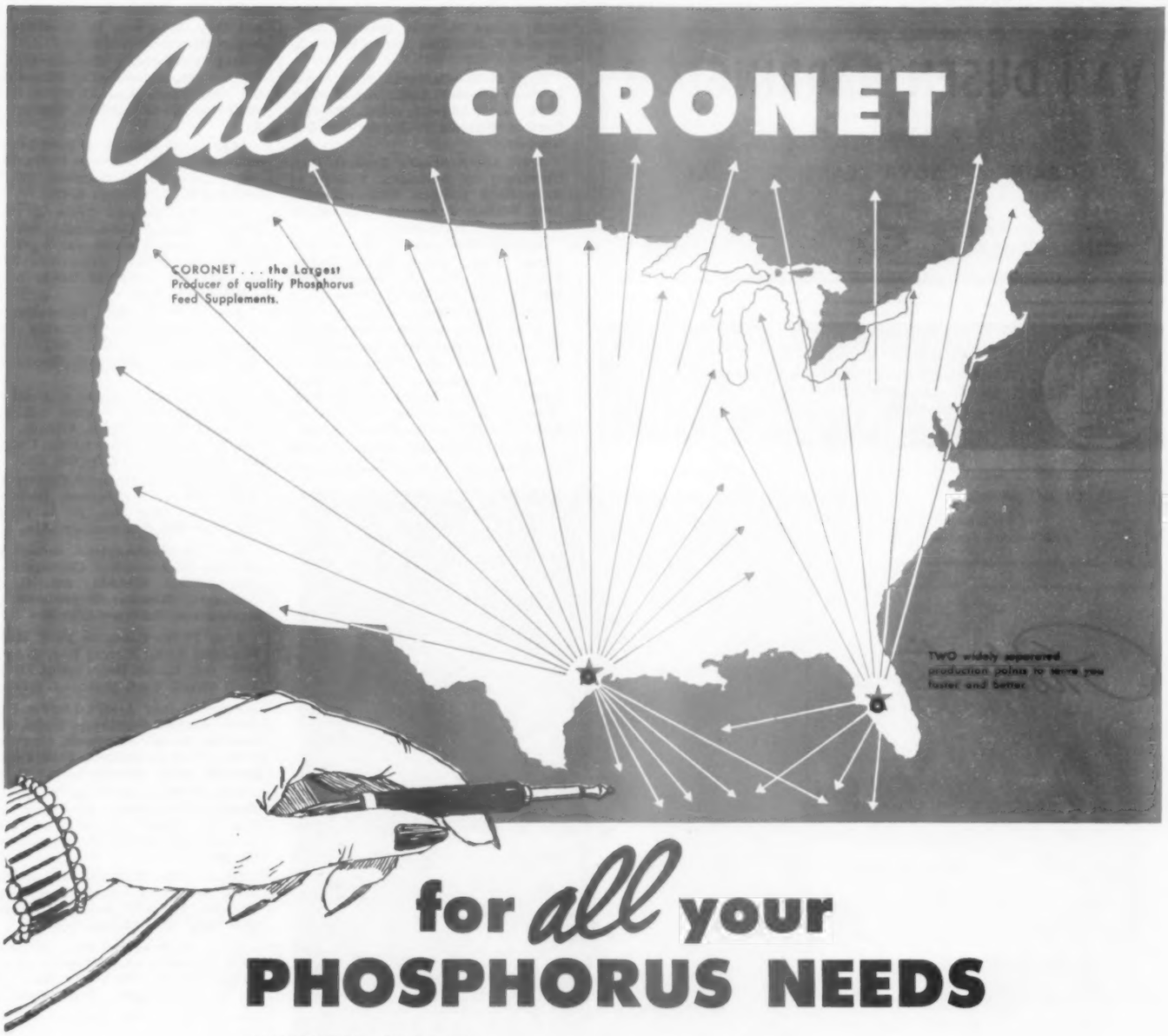
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tional Board; LaSalle Hotel, Chicago; Lloyd H. Geil, general manager, 8 S. Michigan Ave., Chicago 3, Ill.

April 17-19—California Hay, Grain & Feed Dealers Assn., Ambassador Hotel, Los Angeles; chm., Forrest Corzine, Charles T. Taylor Co., Los Angeles.

April 18—Nebraska Feeders Day, University of Nebraska, College of Agriculture campus, Lincoln; chm., Prof. William J. Loeffel, Department of Animal Husbandry.

April 23-24—Texas Feed Manufacturers Assn., Baker Hotel, Dallas, Texas; sec., Ben E. Schmitt, 528 Bewley Bldg., Ft. Worth, Texas.

April 25-26—Texas Grain & Feed Dealers Assn.; Baker Hotel, Dallas, Texas; sec., Ben M. Ferguson, 614 Meacham Bldg., Ft. Worth, Texas.

May 1-3 — Kansas Grain & Feed Dealers Assn.; Broadview Hotel, Wichita, Kansas; sec., O. E. Case, 609 Wiley Bldg., Hutchinson, Kansas.

May 4-5—Missouri Grain, Feed & Seed Assn.; Hotel Governor, Jefferson City, Mo.; sec., D. A. Meinershagen, Higginsville, Mo.

May 10-14—Grain Elevator & Processing Superintendents; Minneapolis, Minn.; sec., Dean M. Clark, 1115 Board of Trade Building, Chicago 6, Ill.

May 21-23—American Feed Manufacturers Assn.; Morrison Hotel, Chicago; sec., W. T. Diamond, 53 W. Jackson Blvd., Chicago 4, Ill.

June 1-3—Indiana Grain & Feed Dealers Assn., mid-summer convention; French Lick-Sheraton Hotel, French Lick, Ind.; exec. sec., Fred K. Sale, 600 Board of Trade Bldg., Indianapolis, Ind.

June 8-10—Eastern Federation of Feed Merchants; Whiteface Inn, Whiteface, N.Y.; exec. dir., Austin W. Carpenter, Box 66, Sherburne, N.Y.

June 9-11—Association of Southern Feed & Fertilizer Control Officials; Heart of Atlanta Motel, Atlanta, Ga.; sec.-treas., Bruce Poundstone, University of Kentucky, Lexington, Ky.

June 10-12 — Alabama Poultry Industry Assn.; Auditorium, Birmingham, Ala.; exec. sec., W. L. Walsh, P.O. Box 567, Montgomery, Ala.

June 16-18—American Association of Feed Microscopists, Chateau Laurier, Ottawa, Canada; sec., G. M. Barnhart, Missouri Department of Agriculture, Jefferson City, Mo.

June 27-30—Canadian Feed Manufacturers Assn.; Murray Bay, Quebec; conv. sec., Rachel Beauchamp, 110 St. Paul Street, East, Montreal, Canada.

June 28-July 1—Georgia Feed Assn.; General Oglethorpe Hotel, Wilmington Island, Savannah, Ga.; sec.-treas., Will L. Kinard, 3240 Peachtree Rd. Bldg., Atlanta 5.

July 22-25 — American Poultry & Hatchery Federation; Cleveland Auditorium (Ohio); convention mgr., Ed G. Gray, 521 E. 63rd St., Kansas City 10, Mo.

Sept. 17-19—National Feed Ingredients Assn., Congress Hotel, Chicago, Ill.; sec., Peter W. Janss, 212 Equitable Bldg., Des Moines, Iowa.

Sept. 25-26 — Arkansas Formula Feed Conference; University of Arkansas, Fayetteville, Ark.; chm., Prof. E. L. Stephenson, Department of

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CORN KIB-LETS
expanded . . . kibbled
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cooked . . . toasted
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EXPELLER SOY BEAN MEAL
and other ingredient specialties

Nowhere else can you secure such a major part of your dog food ingredients. By combining your ingredient purchases in cars, mixed cars or LCL you are assured of freshness, and better inventory control with lower inventory investment. BOXER ingredients are manufactured by us specially for dogs—they are "prime" products, and not "by-products." Write for current prices and literature.

RALPH WELLS & CO.
MONMOUTH, ILLINOIS
QUALITY DOG FOOD INGREDIENTS

Animal Industry and Veterinary Science.

Oct. 7-9—Northeastern Poultry Producers Council Poultry Exposition and Convention; Farm Show Bldg., Harrisburg, Pa.; chm., Alfred Van Wagenen, NEPPCO, 10 Rutgers Place, Trenton 8, N.J.

Oct. 14-16 — Association of American Feed Control Officials; Shoreham Hotel, Washington, D.C.; sec., L. E. Bopst, University of Maryland, College Park, Md.

Oct. 16-17 — Oklahoma Formula Feed Conference, Oklahoma State University, Stillwater, Okla.; chm., Dr. Rollin H. Thayer, Poultry Science Dept.

Found Guilty of Cornering Egg Market

WASHINGTON — For price manipulation and cornering the Chicago egg market in violation of the Commodity Exchange Act, an order putting a Chicago brokerage firm, its president, and 11 other traders out of all contract markets for periods ranging from one year to 60 days has been upheld by the U.S. Court of Appeals for the Seventh Circuit, the U.S. Department of Agriculture said.

Judge W. Lynn Parkinson wrote the decision of the three-member court which was unanimous.

The government complaint in the case, based on investigations of the USDA's Commodity Exchange Authority, charged that Gilbert H. Miller, G. H. Miller & Co. and 11 other traders, acting collectively, attained a dominant "long" position in the 1952 December egg future on the Chicago Mercantile Exchange and controlled the deliverable supply of refrigerator eggs. Charges of price manipulation and cornering were sustained by the department's judicial officer, Thomas J. Flavin, who found that the respondents pressured prices upward by controlling the deliverable supply and creating an artificial scarcity.

In denying a petition to review and set aside Mr. Flavin's decision, the U.S. Court of Appeals found that the traders involved cornered the egg futures market, manipulated prices, and realized a profit on their manipulative venture of $162,695.15.

The court's decision confirms the following sanctions imposed by the judicial officer:

Registration of G. H. Miller & Co. as futures commission merchant, and of Gilbert H. Miller as floor broker, revoked, and trading privileges on all contract markets ordered denied for one year.

Howard Randolph, doing business as Randolph & Co., Guthrie Center, Iowa; Refrigerated Products, Inc., and J. W. Harding, Ft. Worth, Texas, denied trading privileges for one year.

Central Iowa Poultry & Egg Co., and John H. Snowgren, Marshalltown, Iowa; Allen Headlee, doing business as Headlee Produce Co., Coon Rapids, Iowa; A. L. Myrick, doing business as Market Produce Co., Ft. Worth; Lewis R. Van Sant and Roy Rountree, partners, doing business as Dated Egg Co., Houston, Texas, denied trading privileges for six months.

E. E. Hummel and K. Hummel, partners, doing business as Hummel Produce Co., Oakland, Iowa; Albert Schirm, doing business as Schirm Produce Co., Walnut, Iowa, and Leo Hagen, Guthrie Center, Iowa, denied trading privileges for 60 days.

Feed Mill Planned

DURANGO, COLO.—The Basin Cooperative has announced plans to build a $140,000 feed mill three miles south of Durango. Wes Greer, manager of the cooperative, said the mill would be large enough to serve the entire Durango area.

ELECTED COMMANDANT

NEW YORK—Joseph Baird Magnus of Magnus, Mabee & Reynard, was elected recently to the office of Commandant of the Veteran Corps of Artillery, State of New York, the Military Society of the War of 1812. The election was held at Fraunces Tavern. As Commandant, Mr. Magnus has the rank of Colonel.

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The original dried blackstrap molasses product. Each 100 lbs. contains the solids from 93 lbs. feeding cane molasses (23 lbs. of water removed) and 30 lbs. Corn Oil Meal. Convenient 50-lb. bags.

Scotch O Lass

The thrifty dried blackstrap molasses. Each 100 lbs. contains the solids from 85 lbs. feeding cane molasses (21 lbs. of water removed) and 36 lbs. soybean mill feed. Handy 50-lb. bags.

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H. E. HARDY & CO. 912 MIDLAND BANK BLDG., MINNEAPOLIS, MINN.

Richard Creek Named To Maryland Staff

COLLEGE PARK, MD.—Dr. Richard D. Creek has been appointed to the staff of the University of Maryland poultry department as assistant professor in poultry nutrition, according to Dr. Clyne S. Shaffner, head of the department.

Dr. Creek was born in Rushville, Ind. He received his undergraduate and graduate training at Purdue University. He was granted the Ph.D. degree in August, 1955, majoring in the field of poultry nutrition. Since that time he has been on the teaching and research staff of Southern Illinois University at Carbondale, Ill.

At the University of Maryland, Dr. Creek will be working in poultry nutrition research. He succeeds Dr. G. L. Romoser, who recently accepted employment with Monsanto Chemical Co., St. Louis.

Hog Raising, Housing Will Be Subject of Conference in Iowa

AMES, IOWA—Iowa hog producers and building material handlers will confer on new swine housing and management developments at Iowa State College Feb. 20.

Prof. Hobart Beresford, head of the agricultural engineering department at the college, said this conference will bring together for the first time in one session the various phases of agricultural engineering and livestock research findings on new types of swine production units. He said inquiries which college extension specialists have received on this subject in the past six months indicate about 300 swine producers may be expected at the event.

A panel of swine producers who have adopted new multiple farrowing, intensive production programs will supplement the research reports with on-the-farm experience.

The conference will be at the Memorial Union on the college campus, beginning with registration and a coffee hour at 8:30 a.m.

The formal program will start at 9:30 with a report by animal husbandman Prof. William Zmolek on "Adjustments in the Swine Industry." Several discussions by agricultural engineers will be given. They are: "Engineering Implications in Confined-Type Swine Production Units," by Prof. Norval Curry; "Insulation and Ventilation of Swine Housing," by Dr. Thamon Hazen; "Heating Farrowing Units," by Landy Altman, Jr.; "Heating and Ventilation Controls and Equipment for Feed Handling and Manure Removal," by Dr. Leon Charity and Larry Van Fossen. The swine producers will then report on their experiences.

Dr. Damon Catron, head of swine nutrition research at the Iowa Agricultural Experiment Station, will give the final discussion of the afternoon on "Nutritional Requirements."

W. H. Lamson in New Post with Nichols, Inc.

EXETER, N.H. — Nichols, Inc., Exeter, N.H., recently announced the assignment of W. H. Lamson to head the company's sales and service in Delmarva.

At present Mr. Lamson is working out of Salisbury, Md. He formerly serviced the Peninsula area from Nichols' headquarters office in Exeter. He has also worked with processors and feeders in New England.

Mr. Lamson is a graduate of the University of New Hampshire.

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You supply feed for lots of baby chicks . . . and the folks raising them depend on you for the best their money will buy.

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On the Murphy program, pullets switch easily to Vig-O-Ray Concentrate and grain at four weeks, make maximum use of home-grown grains, and produce eggs for a cash outlay of less than 5¢ per dozen. Yes, the Murphy program saves feed, labor, and money. That means more profit and, in the long run, your business *depends* on your customers' profits.

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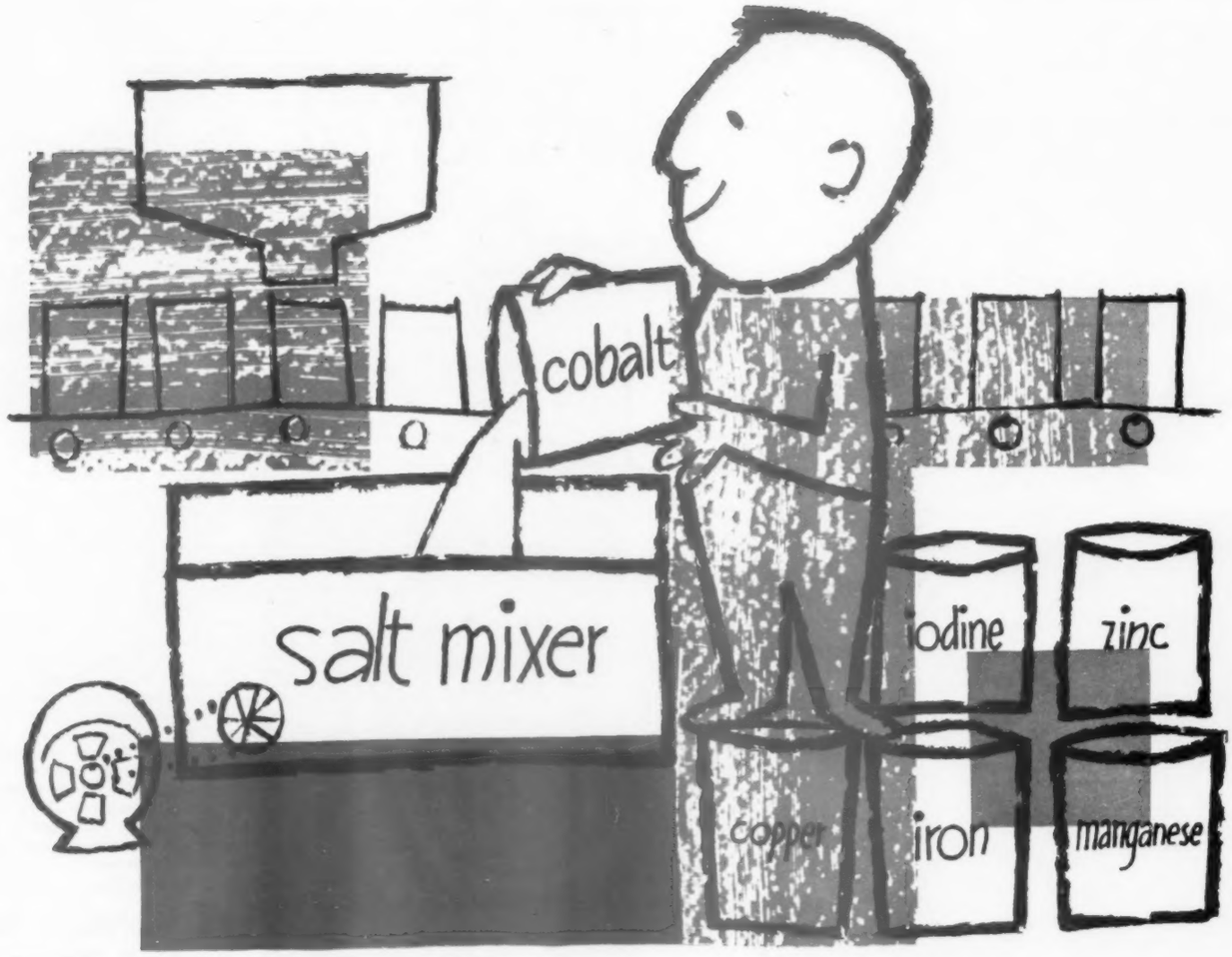

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N.W. Manufacturers Told of Plans for New Minnesota Feed Law

MINNEAPOLIS—Preliminary work on getting a new feed law enacted in Minnesota is underway, it was reported at the Northwest Feed Manufacturers Assn. meeting Jan. 20 at the Calhoun Beach Hotel.

R. E. Bergman, chemist in charge of state feed control, told the feed men that his department has been operating under a law passed in 1919 and that it is time it was brought up to date. A proposed law will be presented to the next session of the state legislature in 1959, he said.

A committee from the feed manufacturers' organization has been appointed to work with state officials and representatives of the Northwest Retail Feed Assn. in developing the bill. NWFMA committee members are Earl Hanson, Archer-Daniels-Midland Co.; George Patrias, Hubbard Milling Co.; Frank Crane, Land O' Lakes Creameries, Inc., and Leroy Schilt, Ralston Purina Co.

Mr. Bergman said he hopes that the new law can do away with use of tax tags and stamps and utilize tonnage reports for tax purposes. He said that he would circulate copies of the model feed law developed by the American Feed Manufacturers Assn. and the Association of American Feed Control Officials among manufacturers registered in Minnesota for their consideration.

The main speaker at the meeting was Robert W. Worcester, agricultural economist in the research department at the Federal Reserve Bank of Minneapolis. Mr. Worcester showed a number of graphs which told the story of changes in agriculture.

Higher income for farm products has been accompanied by higher farm costs, Mr. Worcester said, and this has required a bigger investment in operating assets of farmers. Farming, as individual units get larger, requires closer, more careful management, he said.

The speaker said he did not expect major improvement in the cost-price situation in the near future, but the steady and rapid increase in population is a hopeful sign and an opportunity for agriculture to make necessary adjustments. He said that it appears that the nation may be overinvested in agricultural capacity.

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MALT SPROUTS
BREWERS GRAINS
DISTILLERS GRAINS
BEET PULP
AND 44 OTHER FEEDS

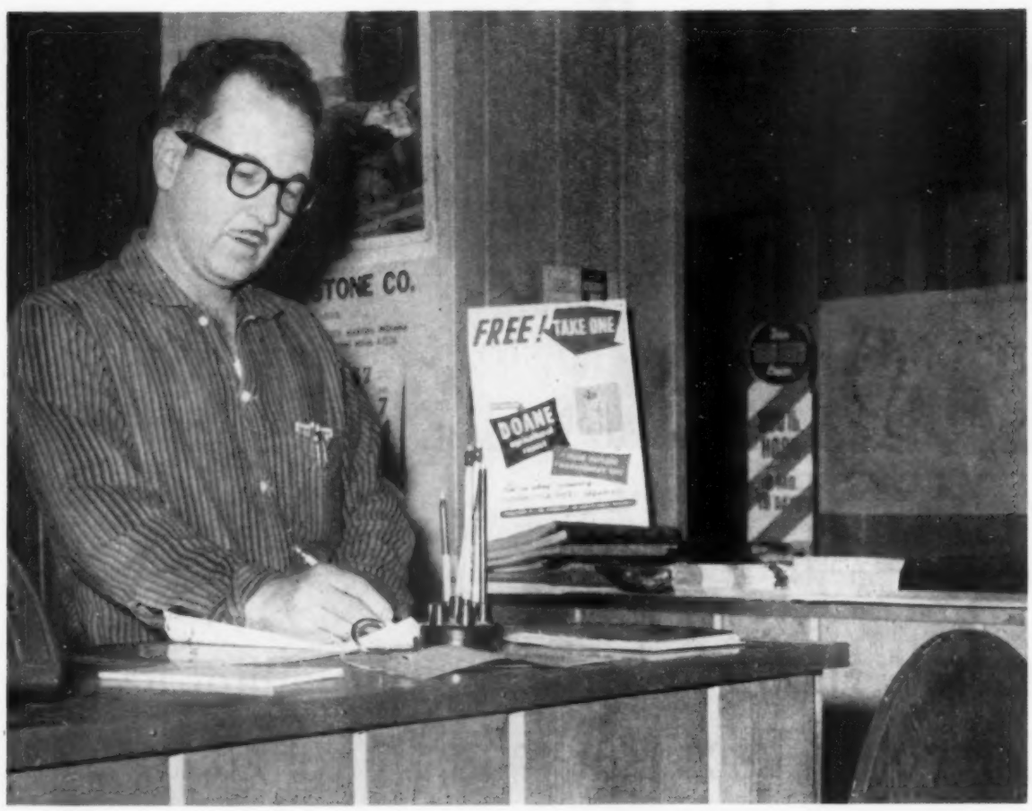
L. S. Riford, Jr.

BEACON PROMOTION—L. S. Riford, Jr., has been named head of the ingredient supply department of the Beacon Milling Co., Cayuga, N.Y., according to an announcement by P. E. Newman, Beacon's executive vice president. Mr. Riford has been with Beacon since 1949, and has worked in the company's accounting and credit departments as well as in ingredient supply. In his present post he succeeds Dr. Newman, who has had overall responsibility for the department in addition to other executive duties. Mr. Riford has for some time made Beacon's purchases of grains and oil meals, and will continue to do so. Baldwin Avery handles purchases of other feed ingredients and of containers, while J. Keiper Groff is responsible for the ordering out of materials purchased.

Thomas Dowe Heads Vermont Station

BURLINGTON, VT.—Dr. Thomas W. Dowe, formerly at the University of Nebraska, is the new director of the Vermont Agricultural Experiment Station.

He was named to the Vermont post after serving at Nebraska as associate professor of animal husbandry. Dr. Dowe received both his master's and Ph.D. degrees from Kansas State College. Since his graduation from Texas A&M College in 1947, he has specialized in animal nutrition, and he is well known in the feed industry for his cattle nutrition work.



Mr. W. R. Aukerman, owner, Amboy Grain Company, Amboy, Indiana

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County Fair float helps build seed treating business

Shown above is the float prepared by Producer Grain Co., of Grant, Nebraska. This display which calls attention to the value of having seed treated by the automatic Panogen Process, attracted a lot of comment at the County Fair.

According to manager Fred McClenahan, advertising like this has helped Producer Grain Co. build an extremely profitable business. They treated 67,000 bushels of seed the first season after purchasing their automatic Panogen treater in October, 1956. Right now, it looks as though they'll exceed that record their second year.

Jacobson Hammermills for Alfalfa Processing

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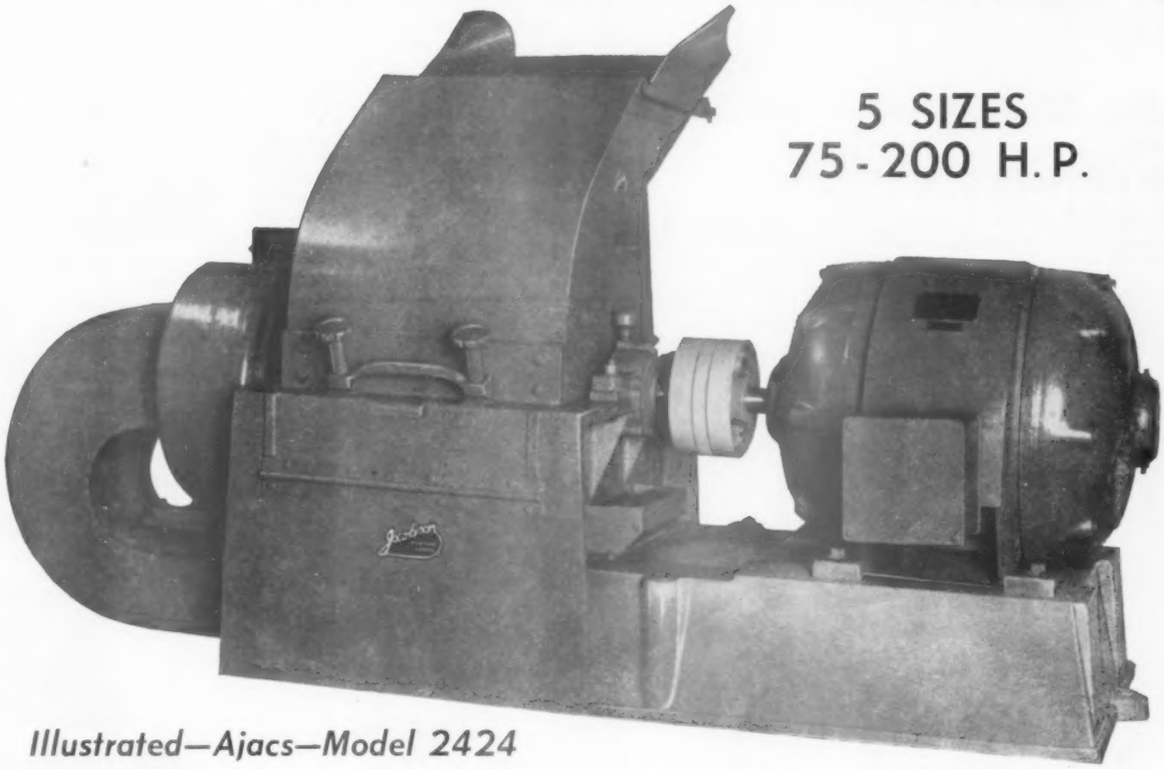
75 - 200 H. P.



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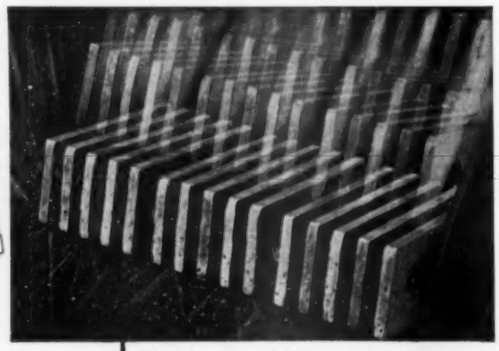

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Poultry, Egg Board Receives Near-Record Financial Support

CHICAGO—The Poultry and Egg National Board received a near-record $289,906 in financial support during 1957, it was reported this week.

The record gross income for PENB since it was organized 18 years ago was $310,803 in 1956.

The principal income in 1957 was from the egg industry. The total invested in PENB for the promotion of eggs was $90,530, according to Lloyd H. Geil, PENB general manager.

A further break-down of the 1957 PENB income shows that the broiler industry invested $79,617. The amount received from the National Broiler Council during the year was $59,071, or 74.2% of the broiler receipts. The remaining $20,546, or 25.8% of the total broiler income, was collected by PENB from broiler-income sources outside the collection areas of the NBC.

Income from the turkey industry totaled $41,236. The National Turkey Federation turned over to PENB $34,146, or 82.8% of the total from the turkey industry, for the furtherance of turkey promotion programs. The remainder, or $7,090, was brought in by PENB itself.

National allied industries invested $34,987 in PENB in 1957. Of this amount, $30,236 was secured through the Feather Fund method of solicitation conducted jointly by PENB, NTF and NBC among firms doing interstate business.

The remaining income includes $8,592 from producers of farm chickens and $34,944 from the sale of recipe booklets and similar sales-building literature, and retail merchandising aids. It also includes interest on reserve income.

H. B. STALLCOP DIES

POMEROY, WASH. — Harley B. Stallcop, father of Pete Stallcop, executive secretary of the Northwest Country Elevator Assn. and the Minneapolis Terminal Elevator Assn., Minneapolis, died here Jan. 14. He was 76. A retired farmer, Mr. Stallcop is survived by his widow, three daughters and three sons.

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In bag or in bulk, you'll find every desirable mixing quality in BARTON Mixing Salt. BARTON'S pure evaporated salt, plain or iodized, is readily available to provide trouble-free mixing for the feed manufacturer. Available, too, with trace minerals if your formula requires them. Prove to yourself that there is none finer than BARTON Mixing Salt.

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Provide your customers with the extra margin of assurance they get when they supplement every ration with BARTON SALT. In bags or blocks, it is available with or without added minerals. Keep plenty on hand.

THE BARTON SALT CO.
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The Salt Cellar of America

Thomas E. Hosty, Sr.

Thomas E. Hosty, Sr., Reelected Chairman Of Chicago Exchange

CHICAGO—Thomas E. Hosty, Sr., senior partner with Sincere & Co., was reelected Jan. 20 by the membership as chairman of the board, Chicago Board of Trade. Prior to his election as chairman last year, Mr. Hosty had served nine years on its directorate.

Also reelected was James F. Wade as vice chairman. He is a partner with Lamson Bros. & Co. To fill the post of second vice chairman, Ford M. Ferguson with Stratton Grain Co. was chosen. Prior to his association with Stratton, Mr. Ferguson was vice president of the Glidden Co. for five years and assistant vice president of Cargill, Inc., for 10 years. Mr. Hosty, Mr. Wade and Mr. Ferguson all were unopposed in the election.

For the five posts as directors of the exchange to serve three year terms, there were seven candidates. The successful ones were: James E. Baggot, partner, Baggot & Morrison; Ray C. Feuerhaken, Jr., broker; Samuel A. McMurray with Merrill Lynch, Pierce, Fenner & Beane; William J. Kentnich, Jr., broker, and Clarence Rowland, Jr., partner with Engel & Co. Mr. Kentnich and Mr. Rowland just concluded their first terms as directors of the exchange.

Selected to serve three year terms on the nominating committee were Clarence W. Elmer, broker and Walter A. Herr, with Francis I. duPont & Co.

Finis Cowan Dies

HOUSTON, TEXAS—Finis E. Cowan, 61, vice president of Continental Grain Co., died Jan. 15, in Houston, where he had resided for the past 12 years. Prior to that time Mr. Cowan had operated a mill for Continental at Geneva, N.Y., and earlier he was associated with the Burrus interests in Ft. Worth. He is survived by his widow, Mrs. Kathleen Cowan; a daughter, Mrs. Paul Cochran, Galveston; a son, Finis E. Cowan, Jr., Houston, and three granddaughters.

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NEW FEED CUTS FEEDER PROBLEMS: Buford Smeeton, Sac City, Iowa, feeder, solved a lot of his feedlot problems with a new type of beef supplement that supplies 75 mg. of Terramycin per head per day. He reports: "Calves have certainly done well on Terramycin. Haven't had a speck of trouble with disease of any kind. Calves also did well on a much poorer ration than usual because of drouth conditions." Tests with the new 75 mg. feed proved it could increase gains and feed efficiency an average of 8% . . . reduce the incidence of bloat by 76%. Feeders report fewer foot rot and liver abscess problems; increased bloom, carcass quality, dressing percentage and grade.

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These authoritative leaflets on the advantages and correct usage of Paco Molasses Distillers Dried Solubles are responsible for improvement and increased business in all formula feeds. They contain exactly the kind of information wanted by Feed Manufacturers . . . no exaggerated claims, no "bull." Just the facts on what PACO is, what it will do, what it has done, how to use it for bigger profits.

The complete line of Paco folders is now available to all Feed Manufacturers and Dealers, for their own information, along with other literature to distribute to their customers. If you are not acquainted with PACO and its many advantages as a fortifier and "freshener" for all types of feeds, we will be pleased to send by return mail the data you check on coupon below.

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MACHINERY FOR SALE

WHIRLAWAY AIRBLAST CAR LOADERS, cast iron pulleys, new and used feed and elevator equipment. Hagan Mill Machinery, P. O. Box 574, Jefferson City, Mo.

FOR SALE—ENCLOSED MOTORS; RICHardson Scales; truck scales; hammermills; oat crimpers; horizontal and upright feed mixers; sewing machines; elevator legs; screw conveyors; molasses mixers and pellet mills. J. E. Hagan Mill Machinery, Box 574, Jefferson City, Mo.

WAYMATIC BAGGER — 30-day Free Trial. Bag and weigh 6 to 10 bushels per minute at lower cost. Makes any platform scale an automatic bagger-weigher for all free-flowing materials. Absolutely accurate. $295.00. Write for full information. Fisco, Inc., Aurora 22, Illinois.

MACHINERY FOR SALE

FEED MIXER, 1-TON CAPACITY, GUARanteed first-class throughout, 5 H.P. motor drive. Address Ad No. 3479, Feedstuffs, Minneapolis 1, Minn.

DAFFIN MOBILE MILL 1955—A-1 SHAPE, priced to sell, $6,000. Bloomington Produce Co., Bloomington, Wis.

EASTERN CUSTOMERS FOR JACOBSON Hammer Mills. Call: Muncy Mill Machinery Co. Muncy, Pa.; 6-3836.

PNEUMATIC "AIR-CONVEYOR" SYSTEMS —Positive pressure, Sutorbilt, new or used. Any size, capacity, distance or product. Nolder Co., Box 14, Corona Del Mar, Cal.

CALIFORNIA 50 H.P. CENTURY PELLET Mill, complete with TEFC motor, starter, ammeter, die and rolls in good condition. Squealer Feed Co., Harlan, Iowa.

TWO TUBE FURNACES FOR HILL DEhydrators complete with Ray oil burners and controls. Address Ad No. 3471, Feedstuffs, Minneapolis 1, Minn.

MACHINERY FOR SALE

DAFFIN MOBILE MILL ON 1955 FORD truck. A-1 condition. Priced to sell. Address Ad No. 3472, Feedstuffs, Minneapolis 1, Minn.

FISCHBEIN BAG CLOSERS WITH TAPE attachments, also Wenger Packaged Molasses Mixers, Bulk Feed Tanks and Elevators. Muncy Mill Machinery Co., Muncy, Pa.

FOR SALE—CALIFORNIA MASTER PELlet Mills—6308—Crumbler. Universal 75 H.P. Pellet Mills—auxiliary equipment. Address Ad No. 3463, Feedstuffs, Minneapolis 1, Minn.

FOR SALE—1954 CHEVROLET TRACTOR (260 cu. in. reconditioned motor) with two-speed transmission. Also 27 ft. metal covered, single axle trailer. Good running condition and fair rubber on both. Complete unit $1,500. Sphar & Company, Mt. Carmel, Ill.

ONE STRONG-SCOTT UNIT MOLASSES Feed Mixer, tank capacity 100 gal., with electrical heating unit and molasses regulator pump. Size 2, 15 H.P. unit, 6-8 ton per hour capacity, good condition, with extra meter, $975 without motor. Zip Feed Mills, Sioux Falls, S. D.

MARK II FIELD QUEEN SELF-PROpelled chopper and Load Queen; 6-ton self-unloading trailer, power equipped. This equipment used less than one season. Original cost $14,350, will sell for $9,500, f.o.b. Idaho. A. J. Hall, P. O. Box 1134, Billings, Mont.

WORTHINGTON BATCH BLENDERS, 1 ton, 2 ton; Beaird Dryers 4'x30', Rotary Dryers 4'6"x40', 6'x50'; Steam Tube Dryers 4'x30', 6'x45'; Dewatering Presses: Louisville 8-roll 36", Davenport IA, 2A. Ribbon Mixers 336 cu. ft., also attrition mill, conveyor, hammermills. Perry Equipment Corp., 1403 N. 6th St., Philadelphia 22, Pa.

FOR SALE—BLUE STREAK NO. 5A MILL with crusher-feeder attached, dust collector, piping, elbow, screen, 50 H.P. motor and starter. Equipment in good condition. Mill has been rebuilt. Economically priced. Also have available Munson Attrition 30" Mill with two 40 H.P. motors; this is a good buy. Write or phone Wadington Feed Mill Supplies, 2300 Fourth Ave. S. E., Cedar Rapids, Iowa.

SIX BUTLER BINS, 12' IN DIAMETER BY 40' high, bolted in sections, hoppered bottoms, and mounted on stands. Four Butler Bins, 9' in diameter by 40' high, bolted in sections, hoppered bottom, and mounted on stands. Three Black, Sivalls & Bryson Bins, 12'6" in diameter, 45' high, equipped with elevator. These are all heavy duty bolted bins and can be removed. J. E. Hagan Mill Machinery, Highway 50 West, Jefferson City, Mo.

E. H. BEER & CO., INC.

Machinery Division **Baltimore 2, Md.** **LExington 9-2174**

1—13-Ton Fairbanks-Morse Truck Scale, 9x22' deck—very good ..... $ 800.00
1—25-Ton Fairbanks-Morse Truck Scale, 10x35' deck—very good 1,500.00
Many sewing machines in part or complete—Please ask
1—6x17 N&M Square Sifter—very good condition 1,000.00
1—4x17 N&M Square Sifter—very good condition 750.00
1—10-Section Salem Sifter—completely rebuilt 900.00
1—6x17 Wolf Hi-Speed Sifter—like new 2,750.00
1—15" J. B. Hammer Mill on heavy cast iron base, direct connected 75 H.P. BB motor 1,350.00
1—12" Ajax Hammer Mill, direct connected to rebuilt 30 H.P. BB motor 650.00
1—5 H.P. Horizontal Car Spotter, cast steel drum 300.00
1—5 H.P. Vertical Link Belt Car Spotter, cast steel drum, 220-phase, 60 cycle 550.00

1—Richardson Automatic Soft Feed or Grain Scale with agitator, 120 lb. capacity 495.00
2—J-39 Richardson Auto. Scales, 250 lb. and 300 lb.—10 bu. grain, each 1,000.00
1—7½ H.P. Kelly-Duplex Corn Cutter and Grader, magnet starter 375.00
1—3-B Sprout-Waldron Receiving Separator—4-500 bu., new screens—very good 650.00
1—No. 5 Sprout-Waldron Molasses Mixer, direct connected to 25 H.P., 440 volt motor, pump, control, gauge 750.00
1—Vibrox Vibrator, variable speed drive, 28"x28" platform, 1 H.P. 220-440 TE motor—brand new 350.00
9x18 - 9x24 - 9x30 Roll Chills

DISTRIBUTORS MARTIN STEEL BINS AND BUILDINGS—PLEASE ASK

HELP WANTED

EXCELLENT SIDELINE ITEM FOR salesmen selling to feed, grain, farm equipment dealers and farmers. Liberal commissions. Replies will be held confidential. Write Doane Agricultural Service, Inc., St. Louis 8, Mo.

EXPERIENCED MAN TO OPERATE VOLume bulk custom grinding mixing department of two mixers with molasses blenders. 140 H.P. mill, sheller. Heated mixing room, bulk concentrates. Moving expenses, vacation this year, excellent salary. Call collect evenings. Martin Mill, Maquoketa, Iowa.

EDITOR NEEDED!

If you know turkeys, like to write, and would like to be in a key spot in one of the most active and aggressive segments of agriculture, here is your opportunity! Leading poultry publication publisher has opening for editor with knowledge and experience in the turkey industry. Training and experience in journalism are desirable but not essential. Send us an outline of your qualifications and ask us for more information. Address Ad No. 3466, Feedstuffs, Minneapolis 1, Minn.

UNUSUAL OPPORTUNITY

We need executive type sales people with the ambition to build for themselves a good future with a fast growing midwest industry leader. We visualize a man on the under side of 40 with the energy, intelligence, self-discipline and vision to invest some hard work to capitalize a real opportunity in sales. Openings in Iowa, Indiana and Ohio.

Write, Wire or Phone 640
Leland S. Rolf, Honeggers' & Co., Inc.
Fairbury, Illinois

HELP WANTED

SALESMAN, SEED—PREFER PURINA OR similar trained man 28-38 to cover established farm seed territory, southeastern Wisconsin, for leading firm. Must be aggressive merchandiser and ambitious with re-sale experience. There is a future with advancement for right man. Address Ad No. 3454, Feedstuffs, Minneapolis 1, Minn.

EXPERIENCED SALES MANAGER — Wanted by a poultry and dairy feed manufacturer located in southeastern Pennsylvania. Must have thorough experience in our line of business and in selling direct to farmers. The person sought is neither a desk man nor a high pressure salesman but a stable, mature man who through his own accomplishments, planning, personality and training methods will generate and stimulate effective selling by his staff. Five figure salary. Send a resume, which must give complete details. Address Ad No. 3484, Feedstuffs, Minneapolis 1, Minn.

AGENTS WANTED

Largest U. S. Line Rolls, Roller Mills, Crimpers, Flakers, Grain Steamers, Coolers, Air Systems and related equipment. Both new and used. Several exclusive territories available for live agents. Excellent commissions. Old established Midwest manufacturer. If you can sell guaranteed quality equipment address Ad No. 3477, Feedstuffs, Minneapolis 1, Minn. Replies confidential.

SALESMAN WANTED

I am looking for a representative presently calling on feed dealers and elevators to carry a well established calf milk replacer. Distributed nationally and backed by national advertising. Will add $300 to $500 per month income for good, energetic man. A few choice territories open. Give complete details. Write P.O. Box 5020, Minneapolis, Minn.

MANUFACTURERS' AGENTS

calling on implement dealers—feed dealers—farm supply trade to handle our well-known advertised and introduced **year round volume repeat items.**

BALER TWINES—both Mexican and Belgian.

BALING WIRE—BARBED WIRE—FIELD FENCE—NAILS.

Warehouse Stocks of all products available in your territory. The combination of the above items will assure you of added income of several hundred dollars weekly. Some choice territories still open. Write in strict confidence.

Address Ad No. 3427, Feedstuffs, Minneapolis 1, Minn.

BUSINESS OPPORTUNITIES

COMPLETELY EQUIPPED 25 TONS PER hour modern feed mill in north central Ohio. Reasonable terms to responsible party. Write: Honegger-Hanley Mills, Inc., Mansfield, Ohio.

SMALL FEED MILL LOCATED IN THE Delmarva broiler area on the P.R.R. Complete feed mixing unit. Grain storage bins. Suitable for establishing bulk feed receiving station. 200,000 broilers now under contract. Address Ad No. 3468, Feedstuffs, Minneapolis 1, Minn.

WANT TO BUY INTEREST IN RETAIL feed manufacturing mill and become active in business. Successful manager of retail-wholesale feed business and elevator operation. Will assume complete management or other responsible activities. Address Ad No. 3456, Feedstuffs, Minneapolis 1, Minn.

FEED BROKERS WANTED

Must have connections with large feed mills. Complete line of dry dog food. Manufacturer will offer private label to large concerns. Good brokerage fee paid. Address Ad No. 3478, Feedstuffs, Minneapolis 1, Minn.

Our Exclusive Business
COUNTRY ELEVATORS
and FEED MILLS
When you want to buy or
When you want to sell
See or Write
MID-WEST BUSINESS EXCHANGE
Halbert C. Smith Plymouth, Ind.

MACHINERY WANTED

ALL KINDS OF GOOD USED GRAIN processing machinery. E. H. Beer & Co., Inc., Baltimore 2, Md.

MACHINERY WANTED

WANTED HEIL ALFALFA DEHYDRATOR and equipment. Write Roman Elevator Co., Ft. Morgan, Colo.

PELLET MILL — QUOTE MAKE, SIZE, condition, price, die dimensions, and full particulars. Virginia Dehydrating Co., Inc., P. O. Box No. 148, Harrisonburg, Va.

WANTED TO BUY — RICHARDSON scales, bag closing machines and other good mill, feed and elevator equipment. J. E. Hagan Mill Machinery, Jefferson City, Mo.

WANTED TO BUY—1953 TO 1955 DAFFIN, Seco or J. B. Mobile Feed Mill, prefer equipment complete with sheller and bulk discharge auger. Please state price wanted and condition of equipment. Address Ad No. 3485, Feedstuffs, Minneapolis 1, Minn.

SITUATIONS WANTED

SALES EXECUTIVE EXPERIENCED IN all phases of feeding desires connection with small or medium sized mill wishing to expand their sales. Address Ad No. 3434, Feedstuffs, Minneapolis 1, Minn.

BUYER WITH 12 YEARS' EXPERIENCE— Good understanding of markets, ingredients, and pricing. Steady, dependable, age 36, family. Address Ad No. 3459, Feedstuffs, Minneapolis 1, Minn.

VETERINARIAN LOOKING FOR POSItion with feed company doing field work. Excellent background, training and experience in livestock and poultry nutrition and disease work. Address Ad No. 3462, Feedstuffs, Minneapolis 1, Minn.

EXPERIENCED FEED MAN, COLLEGE education, interested in sales, production or general management. Thorough agricultural background. Medium or small organization preferred. Successful record. Address Ad No. 3455, Feedstuffs, Minneapolis 1, Minn.

DOCTORATE IN NUTRITION AND BIOchemistry, desires relocation, commercial or college other than South or Southwest. Commercial feed formulation experience. 6 years' research experience. Age 37. Address Ad No. 3444, Feedstuffs, Minneapolis 1, Minn.

D.V.M. - ANIMAL PATHOLOGIST, 11 years' diversified experience in private practice and disease diagnostic laboratories. Administrative and public relations experience. Interested in relocating. Will travel anywhere. Address Ad No. 3473, Feedstuffs, Minneapolis 1, Minn.

AVAILABLE FEB. 1, FEED MILL SUPERintendent—Experienced in 200-ton per day also 500-ton per day plant. Can take complete charge of mill operation. Best of references. Prefer to locate in the South. Forty-seven years old and married. Address Ad No. 3470, Feedstuffs, Minneapolis 1, Minn.

SALES EXECUTIVE EXPERIENCED IN general management and formula feed sales, desires opportunity with progressive company. Twenty years' experience in merchandising with dealer organization, nutrition, purchasing, plant operation, finance, sales training and sales management. Address Ad No. 3421, Feedstuffs, Board of Trade Bldg., 141 W. Jackson Blvd., Chicago 4, Ill.

Field Trials Point Out Value of Lacombe Hogs

WINNIPEG — Recently completed field trials leave no doubt that the new Lacombe breed of swine has fulfilled the purpose for which it was developed—to provide a controlled and gainful use of hybrid vigor in Canadian swine production, according to the Lacombe Experimental Farm. The trials were conducted in cooperation with commercial producers.

Testing by other experimental farms and the University of Alberta lends additional support to the Lacombe trials, said Dr. H. T. Fredeen of the Lacombe Farm.

Information obtained from more than 4,000 pigs in the commercial herd field trial established that crossbred litters sired by Lacombe boars are at least equivalent in size to those litters sired by boars of other breeds. In growth rate the Lacombe-sired pigs have shown a useful advantage, being 8% heavier in average weaning weight and reaching market weight of 200 lb. on the average of 4% faster. In carcass quality they have been slightly superior.

In the commercial herd, half of the sows were bred to a Lacombe boar and the remaining half to a boar of the breed selected by the producer.

I read
FEEDSTUFFS
every week. I'm wise to
FEED INDUSTRY
Happenings

Pfizer Advertising Wins Special Award

CHICAGO — Designation of Chas. Pfizer & Co., Inc., as industrial advertising's "company - of - the - year" was announced this month by Industrial Marketing magazine. Cited for its distinctive annual report and corporate and divisional advertising programs, the chemical and pharmaceutical firm was described as a company that has developed "a wonderful creative atmosphere which leads to distinguished advertising."

The award, announced in the January issue of Industrial Marketing, trade magazine for sales and advertising personnel, stems from the deliberations of an anonymous group of critics of industrial advertising. Composed of experts in advertising, the group is known as the "Copy Chasers" and writes a monthly feature in Industrial Marketing.

In its review of Pfizer's award-winning advertising program, Industrial Marketing cites the company for its "superb" annual report for 1956. The report appeared last March as a supplement to the Sunday edition of the New York Times, Chicago Tribune and Los Angeles Times.

Also selected for mention was Pfizer's 32-page book, "Our Smallest Servants, the Story of Fermentation," which tells the story of molds and spores for human needs in a "colorful, intelligent and interesting" manner.

Discussing the programs conducted by Pfizer's four marketing divisions, Industrial Marketing pays tribute to the company's imaginative and attractive ads created to promote the sale of Pfizer products. The divisions are the laboratories, chemical sales, agricultural sales and J. B. Roerig & Co. divisions.

The agricultural sales division received credit from the "Copy Chasers" for its "hard-sell" copy which describes new feeding ideas with Terramycin and other products used in feeds. Also mentioned was the division's "institutional manner" ad, which often runs in four colors, describing the values of scientifically manufactured feed.

Credited with the over-all award-winning advertising program were the company's five "creative advertising managers," including Edward C. Bergelt, director of advertising, agricultural sales, and George H. Weiler, Jr., director of public relations.

Champion Turkey Brings $29 Lb.

ST. LOUIS—The champion entry in the recent National Dressed Turkey Show was auctioned off at $29 lb. The bird—a young tom turkey weighing 32 lb., 12 oz., raised by Steenbergen Turkey Farm, Ironton, Ohio—was purchased by Dr. Salsbury's Laboratories, Charles City, Iowa, for a total of $935.25.

The sale of champion turkeys was one of the highlights of the National Turkey Federation convention.

The grand champion of the junior division, a 21-lb. bird raised by Bruce R. Johnson of Scappoose, Ore., brought $30 lb. from William A. Barlocker, St. George, Utah, turkey breeder. Dr. Salsbury's Laboratories purchased the champion gift packed bird, raised by Harvey Wilford, Elyria, Ohio, for $3 lb.

The reserve champion in the senior division—a 21-lb. hen from Ros-A-Linda Hatchery, Rio Linda, Cal., was bid in by D. A. Wolfe, General Mills, Inc., Kansas City, for $15 lb. The champion fryer-roaster, raised by Steenbergen Turkey Farm, was sold to Dale Streitenberger, Early & Daniel Co., Cincinnati, for $13 lb.

The winner of the governor's challenge contest—a 53-lb. bird raised by William A. Barlocker—was auctioned off for $3.25 lb. to R. H. Eshelman, Hess & Clark, Inc., Ashland, Ohio. This was the second year that the "world's largest turkey" has been bought by the firm.

Wendell A. Landmann Joins Meat Institute

CHICAGO — The American Meat Institute Foundation at the University of Chicago has employed Dr. Wendell A. Landmann as chief of the division of analytical and physical chemistry. The announcement was made by Dr. B. S. Schweigert, AMIF director of research and education.

Dr. Landmann replaces Dr. D. M. Doty, who will devote full time to his responsibilities as associate director of research and education.

"Because of his training and previous experience, especially in protein chemistry, the chemical effects produced by irradiation, and in instrumentation," Dr. Schweigert pointed out, "Dr. Landmann is regarded as exceptionally well qualified to lead the long-range program on new analytical methods and on physical-chemical characteristics of the components of meat and meat products now under way at the Foundation."

Dr. Landmann received his B.S. degree in chemistry from the University of Illinois in 1941, his M.S. from Purdue University in 1944, and, after serving in the armed forces, was awarded his Ph.D. in chemistry by Purdue University in 1951. Since 1951, he has held research positions with Armour & Co. and with the Argonne National Laboratories.

Alley Grain to Handle Hubbard Products

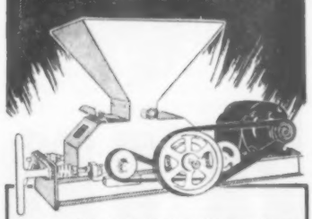
CEDAR RAPIDS, IOWA—The Alley Grain Co., St. Joseph, Mo., will be a distributor of Sunshine feeds and concentrates, products of Hubbard Milling Co., Mankato, Minn.

The announcement was made by Dale J. Snyder, sales manager of Hubbard's Cedar Rapids, Iowa, division. Alley Grain will be served by the new Hubbard plant at Cedar Rapids.

HIGHER QUALITY HEAT TREATED **HAMMERS**
Hammers direct from manufacturer of years' experience. Send your specifications or worn hammer. Quantity discounts on hammers and screens. Ask for prices.
SOUTHWEST MILL SUPPLY CO.
P. O. Box 7455 N. Kansas City, Mo.

COB GRINDING HEADQUARTERS!
Our mill capacity assures adequate supply of uniform, high quality Dehydrated Corn Cob Meal for your feed program. Paxco brand acclaimed by all who use it. Write for information on uses, prices and samples.
PAXTON PROCESSING CO., INC.
P. O. Box 120 Phone 222 Paxton, Ill.

PIGEON FEEDS
Contact us for your needs of Pigeon Feed, Wild Bird Feed, Parakeet or Hamster Feed. Our formula or custom mix. One ton or a carload.
M. G. R. FEED CO., INC.
P. O. Box 4006 Hammond, Indiana

BETTER "MEALS" AT YARDS with DAVIS GRAIN ROLLER

To provide fresh feed daily The Kansas City Stock Yards Company has mounted a 10" x 10" Krimper-Kracker® over driveway at the Hog and Sheep Barn. Grains from overhead bins are rolled dust-free and drop into wagons. Thousands of other Krimper-Krackers are operating daily and are made in 15 different sizes, electric or PTO.
Write for free catalog, "THIS IS AUTOMATION"
DAVIS BUILT HCD SINCE 1894 H. C. DAVIS SONS MANUFACTURING COMPANY

Dealers and Feed Manufacturers Inquiries Invited for
CUT CORN
GROUND CORN
BREWERS GR. & MOLASSES
(will not cake or harden)
MOLASSES
(Bbls. & Trucklots)
C-O-LASS
(A Dried Molasses Product)
43% EXPELLER SOY MEAL
JANESVILLE MILLS
411 S. Pearl St.
(Manufacturers & Merchandisers)
JANESVILLE, WIS.
Phone PL 4-3371

Successful Western Feed Men rely on H.V. NOOTBAAR & CO. for
• Proven Profit-Making Feed Ingredients • Prompt Action • Experience & Service • Knowledge & Assistance • Integrity & Responsibility
Your BEST Western source for feed ingredients. One phone call may answer all your needs!
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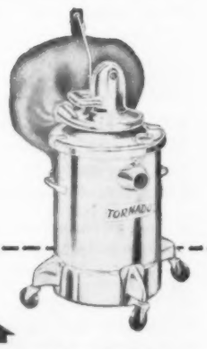
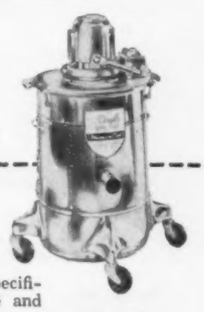
FOR SALE
• LIVER MEAL, 65% Protein
• ALL BEEF MEAL, 50% and 55% Protein
Fine Ground—Packed 50's or 100's
BRUCE MILLING CO.
229 North James Street
Kansas City 18, Kansas
DRexel 1-7083
For All Your Animal Protein Needs

for a clean house, a SAFE house...
BURROWS VACUUM CLEANERS
These reliable, well-made cleaners and blowers are specially designed for grain, feed and seed operations.


TORNADO HEAVY DUTY
Powerful, efficient, industrial type, for every cleaning job, floor to ceiling. Picks up liquids as well as dust and dirt. Easy-rolling 12-gal. tank, many other features.
TORNADO PORTABLE ELECTRIC BLOWER
Highly adaptable, easy to handle. Powerful blast for blowing or suction . . . ideal for cleaning motors, fixtures, equipment. Convertible for spraying fumigant.


DOYLE VACUUM CLEANER Especially for hazardous locations in elevators, mills, plants, seed houses. Meets Underwriters' specifications for Class 2, Group G and Class 1, Group D atmospheres.
Write for Our New 200 Page Catalog No. 10—It Shows Our Complete Line of Testing, Handling and Processing Equipment for Grain, Feed and Seed.
BURROWS EQUIPMENT COMPANY
1316 C Sherman Ave. Evanston, Ill.

This success story can be

Your Success Story

This is the story of Mr. Dewey Casto, a feed dealer at Jewell, Iowa, who operates a mobile mill. In 1957 he traded his inadequate mobile mill for a MELOS. His all new Melos unit has features the other make lacked. Look at the ADDITIONAL PROFIT Mr. Casto has realized with his Melos.

Check these statements!

- **"Since I have started operating my Melos Mobile Mill my sales of supplements have increased 20%," writes Mr. Casto. The reason is simple as he explains: "It grinds faster and is the only mixer that truly handles two tons or more and thoroughly mixes the molasses."**
- **"I believe that with my Melos I can grind and mix more in less time than a competitor with another make of mill."**
- **"My mill is working for me 60 hours each week." Mr. Casto is not only selling a lot of supplements, he is getting an hourly charge for his grinding and mixing services—this is ADDITIONAL PROFITS over and above his supplement mark-up.**

How good is the Melos Machine?

● Mr. Casto compares—"The Melos Mill is constructed a lot heavier and is more sturdily built; it costs less in repairs than the mill I had previously. In my opinion and by my previous experience it costs less to operate and will outwear other makes of mills."

If you already have a mobile mill, this story should convince you to change to Melos. If you are not now offering a mobile mill service to your customers—start out RIGHT—with a MELOS MOBILE MILL.

Keep your mill on the road, not in repair shops. Get a mill that is DESIGNED AND BUILT to MAKE PROFITS.

The success story of Mr. Dewey Casto can be YOUR SUCCESS STORY. Write for complete details TODAY!

YOU'LL MAKE MORE *Profit*
WITH A
MELOS Mobile Mill

The Melos Mobile Mill is
DESIGNED to make you profits.
MELOS can help you finance!

33 Years in the portable mill business

Write for Detailed Information

MELOS MANUFACTURING COMPANY
2010 Hubbell Blvd., Des Moines, Iowa

"Quality-Controlled" Egg Programs in Midwest Discussed

DES MOINES—Midwestern farmers must become more familiar with the problems of egg marketing before "quality-controlled" egg programs can reach maximum success.

This was the conclusion of a panel which appeared before 200 hatserymen from 10 midwestern states at the American Poultry & Hatchery Federation "quickie" convention held here.

Panelists were Pat Waters, regional sales manager, feed division, General Mills, Inc., Kansas City, and Marvin Rovang, field man, Mitchell County, Iowa, Farm Bureau. Leonard Eggleton, extension poultry specialist at Iowa State College, was the moderator.

Until farmers themselves recognize that the consumer dictates product acceptance, "quality-controlled" egg programs must operate under strict supervision of outside persons, panelists said.

"The key to these programs is to get eggs to the store and moving in volume," Mr. Waters said. "Chain stores have had many programs presented to them by producers in the past. They bog down when the stores fail to get the promised quality in quantity."

Another problem, Mr. Waters said, is to keep the farmers loyal to a program when they are tempted to market their produce through other channels because of a temporarily higher price. He said it is not unusual for a market to get out of line with the national picture temporarily. The egg broker is an opportunist who thrives on such situations, he said.

Mr. Rovang said farmers must realize that flocks of less than 500 to 1,000 are not efficient. Noting that the midwestern farmer isn't too interested in a quality program when prices are good, he charged that the Midwest has no more than five years to get its general egg quality up.

The panel was part of the two-day business management conference. Also on the program was Thomas Lawrence, Lawrence-Leiter & Co., Kansas City business consultant, who was in charge of a six-hour sales seminar and workshop.

FEED STORE SOLD

DE WITT, IOWA—Mrs. Judson Huff has sold the De Witt Mill & Feed Store to Mr. and Mrs. Robert Pratt, Springville, Iowa. They are operating the store under the same name.

GRAVITY IS ANSWER; ***but often problem***

What goes up must come down. This is the basic theory behind storage bins. Gravity is a cheap, efficient prime mover. You put grain into a bin, when you need it you open the chute, and the grain falls out, most of the time. Sometimes the grain arches and plugs.

This is caused by the individual grains clinging together and the surface friction overcoming the force of gravity. The usual answer is a blow from a sledge-hammer. This damages the bin, takes time and holds-up production.

The real answer is a Cleveland Vibrator. The constant joggling from a Cleveland Vibrator keeps the grain in motion and prevents arching. Bins aren't damaged, no time is lost and things move smoothly.

Write for literature and prices

THE CLEVELAND VIBRATOR CO.
Dept. F2A, 2828 Clinton Avenue, Cleveland 13, Ohio

Cash in

on big, steady demand for
PILOT BRAND OYSTER SHELL

You can always count on fast turnovers and good profits when you stock and display PILOT BRAND Oyster Shell. That's because poultrymen everywhere have learned that hens produce more eggs with stronger shells when PILOT BRAND Oyster Shell is in the hoppers.

This year 'round, nation-wide demand—constantly stimulated by advertising in leading farm and poultry journals and on 70 radio stations—makes your selling job easier. It pays to push PILOT BRAND—the largest selling eggshell material in the world.

Order from your distributor or write to us

Oyster Shell Products Corporation
Mobile, Alabama

PILOT BRAND OYSTER SHELL FOR POULTRY

ALFALFA PRICE

(Continued from page 1)

ers naturally have been reluctant to take any stocks ahead of needs while prices were weak.

The reasons for this debacle are rather complex, but basically the cause is over-optimism on the part of many dehydrators who built gas storage last summer. In 1957, there was a 45% increase in gas storage, and the industry as a whole has been rather naive in handling it.

Last summer, instead of selling any production as it came off the driers, many storage owners made full use of their new facilities expecting the usual winter price rise. The rise came along, although nowhere near the normal degree, but when storage holders began to sell freely, prices faded quickly.

Pellet Surplus

A second important factor in price drop appears to be a comparatively large surplus of bulk pellets in relation to demand for that type of product. Since gas storage requires bulk handling, many smaller dehydrators changed their operations to bulk when going into gas storage. Many have no facilities for regrinding and can sell only to feed manufacturers who prefer to buy pellets.

Trade estimates are that not over 20% of feed industry buyers take their dehydrated alfalfa in the form of bulk pellets. Most lack either the storage space for the pellets, sufficient surplus grinding capacity, or prefer not to undertake such a dusty job in their mill.

While the ultimate market is 20% for pellets, the winter availability of pellets is close to 100% in that anything in gas storage is in pellet form. Hence, the pellet price takes the brunt of sales pressure and drags the meal price down with it, since the latter can obtain a premium not much greater than the cost of regrinding, oiling and sacking.

In recent years, the large blenders have been good customers of the smaller dehydrators. By now, however, the larger firms have built enough gas storage so that they are not as good an outlet as they used to be. This year, these firms had plenty of stocks from last summer's production and did not need to purchase.

Other Factors

Some other factors have also contributed to the drop. Normally, in fall and winter a large amount of western pellets is sold to stockmen for direct feeding near the dehydrating plants. This year, a mild early winter, good grass from abundant rains and large local supplies of roughage curtailed this feed market. Some dehydrators who do an extensive cattle feed business say their sales this winter have been running only about one half of last year's.

Thus far, the low prices have done nothing to increase disappearance of dehydrated alfalfa. There is every reason to think that just as much alfalfa would have been sold to the feed industry if prices were $10 a ton higher. The profitless price has not enlarged use so far.

Future Results

What are the long term results expected from this situation? Most alfalfa industry observers believe that the price debacle will bring about some changes:

1. As soon as the liquidating pressure is off, the industry expects the distress prices to disappear and values to rise out of the loss area at least, and possibly rebound higher.

2. There is likely to be a much slower and more cautious start for dehydrating in 1958. It will take some extra time to digest present stocks, and dehydrators are not likely to rush heavily into new production this spring until they are more certain of the stability of the market. Hence, the present situation may act as a production curb next year.

3. New storage operators will realize that they are not going to make a big winter killing just because they have gas storage to fill. Blenders will not be as good winter buyers as they used to be, and the independent dehydrator will understand that he will have to market his own production. Many will put in regrinding and oiling facilities which in turn will take some of the pressure off the pellet market, the smallest part of the total use.

4. The evidence of overproduction in the past year is reviving talk of a five-day week in the alfalfa industry. Nearly all dehydrators run six or seven days during production season, but there has been a considerable body of opinion among dehydrators favoring a five-day operation. The present situation has increased interest, and many plants may consider that possibility in the coming year. Studies presented at the dehydrators' convention three years ago showed that production efficiency improved on a five-day week.

In short, the industry will mature a bit more and be better prepared to handle its new techniques and new facilities.

MIDWEST

(Continued from page 1)

Minneapolis, and John Kallicky, First National Bank, St. Joseph, Mo.

"New Horizons"

The afternoon of Feb. 26 will feature a conference for the agricultural press on "New Horizons in Feeds and Feeding." Lloyd Larson, Midwest executive vice president, said that the conference also will be of interest to every feed man. Dr. J. L. Krider, McMillen Feed Mills, Ft. Wayne, Ind., will moderate the event.

Dr. E. L. Stephenson, University of Arkansas, will tell of advances in feeding broilers; Dr. Rollin Thayer, Oklahoma State University, turkeys; Dr. J. R. Couch, Texas A&M College, layers; Dr. E. E. Bartley, Kansas State College, dairy cattle, and Dr. Wise Burroughs, Iowa State College, beef cattle. Dr. Thayer's presentation will include the first showing of a new sound and color film, "A Team Approach to Turkey Research at Oklahoma State University," which depicts recent turkey research results.

In the morning of Feb. 27, H. Roe Bartle, mayor of Kansas City, will speak, and in a "Building for Tomorrow" session, plans will be outlined for Midwest association activities in various fields. In the field of production, Eric Carlson, Ralston Purina Co., St. Louis, will explain the program and research for the 1958 and future production schools. Other projects to be discussed, and the persons explaining them, are: Veterinary relations, Dr. John Aiken, veterinarian, South Sioux City, Neb.; joint management programs, Sewell Skelton, Oklahoma State University, and Dr. Leslie Johnson, Iowa State College; special conferences for feed salesmen, Dr. John Adams, University of Nebraska; Midwest traffic advisory committee, Owen K. Smith, Cargill, Inc., Kansas City.

Rep. Brown to Speak

A major speaker the morning of Feb. 27 will be Rep. Charles H. Brown (D., Mo.), who headed the committee which investigated the poultry industry. His topic will be "Washington Takes a Look at the Feed Industry."

In the afternoon, Dean McNeal, Pillsbury Mills, Inc., Minneapolis, will explain the changing agriculture and how it affects the feed business. Paul E. Hensel, Central Soya Co., Ft. Wayne, will have as his topic "Today's Communications—Build for Tomorrow." Earl Mitchell, Alabama Flour Mills, Decatur, Ala., will describe "The Rocket Age in Selling."

Closing the program will be a panel of speakers answering questions, moderated by Tom Brinegar, Feed Age, chairman of the convention program committee.

Letters to the Editor

Evaluation of Rumen Inoculum

Chazy, N.Y.

To the Editor:

There is a steadily increasing awareness among dairymen and cattle feeders of the favorable results obtained in actual field use of natural dried rumen organisms. It is a fact that this material is an inoculum which is intended to seed the rumen with favorable organisms for the production of cellulolytic enzymes, vitamins and other desirable bacterial metabolic products. Thus it acts as the basis for the elaboration of a great quantity of such cellulolytic enzymes, vitamins, etc., while only possessing that amount of such enzymes and vitamins usually associated with cellulolytic bacteria in the inoculum itself. This is much like the production of alcohol by yeast. While the yeast itself possesses no alcohol, when used to inoculate the wort, an endless amount of alcohol can be produced.

In fact the amount of these substances eventually produced may exceed the weight of the original inoculum a thousand fold. Thus a proper inoculum of the natural types and species in the rumen acts as a bottomless well filled with cellulolytic enzymes and vitamins. This favorable condition lasts in the rumen as long as the favorable bacteria are maintained.

On the other hand, the use of preformed cellulolytic enzymes is transient in nature, and not at all feasible or necessary.

In spite of these incontroversial facts known to bacteriologists and those acquainted with fermentation, occasional workers in the field of ruminant nutrition have attempted a direct comparison of the cellulolytic activity of the dried rumen organism with rumen juice. Such a comparison is only misleading and obviously not possible as in one case we have the exciter of the reaction, and in the other the by-product of the reaction. This would be similar to comparing the alcohol in yeast and the alcohol produced in the finished wort.

As the use of natural dried rumen organisms is another valuable tool in the economical production of beef and milk, investigators in animal nutrition should not compare it with the cellulolytic activity of paunch juice, but should make a realistic approach and evaluate it in terms of its ability to produce cellulolytic enzymes, vitamins, etc., in the rumen, and study the factors which cause this favorable action of the inoculum so that the reasons underlying the increased feed utilization and weight gains by its use may be fully elucidated.

Edward J. Czarnetzky
The William H. Miner Agricultural Research Institute

(Dr. Czarnetzky is dean of agricultural education, The William H. Miner Agricultural Research Institute, Chazy, N.Y. Previously he was on the faculties of the Universities of California and Pennsylvania and was chief biologist for Wilson & Co., Inc.)

Feather Meal

Grapevine, Texas

To the Editor:

On page 10 of the Jan. 11 Feedstuffs, there is an article by Dr. Harms and Mr. Douglas on "Chick Feeding Trials Involving the Limitations of Feather Meal." The initial experiment using diets shown in Table 1 gives interesting results that demonstrate that soybean meal has a much better amino acid balance than feather meal. A little further work along this line should develop a diet using feather meal as the sole source of crude protein which could be used for measuring the biological availability of the protein in feather meal. The work in the initial experiment indicates that the authors had a rather poor sample of feather meal.

In the second set of experiments involving diets using 0, 2%, 4% and 6% feather meal, the authors used the same poor sample of feather meal which they used in their initial work. The authors then made some rather sweeping condemnations of feather meal, using four-week weights of a small number of birds in batteries. In my judgment, the variations which were observed do not justify the conclusions. I would like to see the authors repeat their experiment using a larger number of birds and carrying the birds to at least eight weeks of age.

We have been doing experimental work with feather meal for approximately one and one half years. Our data clearly indicates that feather meal is another valuable source of protein for the feed industry.

L. E. Deacon
B&D Mills

CORN PRICE

(Continued from page 1)

loan under the $1.40 support level for growers who complied with acreage allotments. They also say that no more than 180 million bushels will be put under the $1.10 loan rate for non-compliers.

They emphasize that this 400-million-bushel total of loan participation is a maximum estimate.

"Free" Supply

These officials estimate that the amount of free market corn will total about 3.28 billion bushels. Here is how they reach that conclusion:

The total crop was estimated at 3.4 billion bushels. Delivery from Commodity Credit Corp. stocks added about 280 million bushels to this total. Subtracting the into-loan estimate leaves a balance of 3.28 billion bushels.

In over-all supply calculations, the huge quantity of grain sorghums and fairly large amounts of barley also must be taken into consideration, these officials say.

However, they also say that the probable inefficient use of wet corn may be a big factor in reducing the evident supply by the time the next stock position report is issued.

Late March is expected to be the testing ground of feed grain prices. One hope of avoiding a bad break in feed grain prices, observers say, is the possibility that a huge quantity of wet corn will be fed this winter through neighbor-to-neighbor sales.

Meanwhile, appearance of CCC corn in the export field will probably diminish as the approach of the new Argentine crop depresses U.S. offers of corn for export.

USDA officials, just back from an extensive Corn Belt visit, say that this crop is the most confused situation they have ever encountered. This view very likely is shared by many observers.

Dow Report Shows Increase in Sales

MIDLAND, MICH.—The Dow Chemical Co. has reported net income of $28,957,241, or $1.12 per share of common stock outstanding, for the six-month period ended Nov. 30, 1957. Sales for the period totaled $337,203,122.

During the same period of 1956, net income was $25,444,320, amounting to $1.01 per common share, on sales totaling $333,128,321.

Earnings before taxes were $57,178,067, an increase over the $48,088,026 reported in 1956.

THE FEED MARKETS

★ ★ ★ ★

Demand — Supply — Trends — Prices

Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bagged, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

A AND D FEEDING OIL

Denver: Demand fair; supply ample; trend unchanged; 2,250 A, 300 D 22½¢ lb.

Seattle: Demand slow; trend steady; supply good; 300 D, 2,250 A 22¢ lb., 300 D, 1,500 A 19¢ lb., 300 D, 750 A 17¢ lb., all ex-warehouse, drums included.

Minneapolis: 10,000 A 35¢ lb.; 300 D, 2,250 A 21½¢ lb.; 300 D, 1,500 A 20½¢ lb.; 300 D, 75 A 18½¢ lb.

New York: Trend steady; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 13½@15½¢, 1,500 A 15½@17¢, 2,250 A 17½@20¢, 3,000 A 19½@21¢; 600 ICU, 1,500 A 16@18¢, 2,250 A 18@19½¢, 3,000 A 20@21½¢; f.o.b. Massachusetts, New York or Pennsylvania.

Chicago: Demand fair; supply adequate; straight A feeding oil, with 10,000 units vitamin A per gram 8½@9½¢ a million units of vitamin A, l.c.l., packed in 55 gal. drums, f.o.b. Chicago, drums included.

Boston: Demand fair; supply adequate; 600 D, 1,500 A 16¢ lb.; 300 D, 2,250 A 17¢ lb.; 300 D, 1,500 A 15¢ lb.; 300 D, 750 A 14¢ lb.

ALFALFA MEAL

Portland: Demand good; supply ample; trend unchanged; suncured $39.50; dehydrated $52.

Cincinnati: Demand fair; trend steady; supply adequate; 17% dehydrated, 100,000 vitamin A $57@62.

Denver: Demand slow; trend steady; supply ample; 100,000 A, 17% $42.

CHICAGO FEED INGREDIENT COMPANY
"THE BARRETTS"
Mfg's Representatives and Brokers
All Vegetable Proteins
Meat Proteins • Hominy Feed
Milk Products
Shea's Dicalcium Phosphate
1306 Halsted St. **SKyline 6-4500**
Chicago Heights, Ill. **P. O. Box 168**

Philadelphia: Demand slow; supply light; 17% dehydrated $64, nominal.

Ft. Worth: Slight improvement in demand; supply adequate; Kansas dehydrated, 17%, 100,000 A $49.50 by truck, $53.75 by rail; suncured No. 1 13% protein, ¼-in. grind, truck $38; Nebraska origin suncured, rail $39, immediate.

Seattle: Demand slow; trend steady; supply good; 15% protein suncured $40, delivered, carlots; 136,000 A unit dehydrated $67, delivered, carlots.

Boston: Demand steady; supply adequate; dehydrated, 17% $62@63; suncured, 13% $45, nominal.

New Orleans: Demand slow; trend weak; supply ample; 17% dehydrated, vitamin A guaranteed $55.50@56.50; pellets $52@53.

Chicago: Demand brisk; supply adequate; 17% dehydrated, with 100,000 units vitamin A guaranteed $50@50.50; 17% with no A guaranteed $46.50@47.

Buffalo: Demand fair; trend steady; supply adequate; $64.50, sacked, Boston.

Kansas City: Demand uneven with some calling it a little better and others calling it fair; trend steady at the current level; supply adequate; dehydrated alfalfa meal with 17% protein and 100,000 units vitamin A guaranteed on arrival $44@48, sacked, Kansas City, with isolated sales reported at 50¢ below the low side; 18% protein 125,000 A meal $53, sacked; 17% protein 100,000 A pellets $40@44, with occasional quotations at $1 lower; non-guaranteed A meal 17% protein $40, 15% protein $35, sacked; suncured meal, slow demand, prices steady, supplies adequate; No. 1 fine ground $35@36; No. 1 ¼-in. $32, No. 2 ¼-in. $27.50 @28, sacked.

St. Louis: Demand slow; trend steady; supply ample; 13% fine suncured $40; dehydrated, 17%, 100,000 units A $49.50.

Los Angeles: Demand slow; trend unchanged; supply ample; dehydrated, 17% protein, 100,000 A $46; suncured, 15% protein $44@44.50; suncured crumbles, 15% protein $46@46.50.

Minneapolis: Weaker trend; fair demand for strong supplies; 17%, 100,000 units of vitamin A $49; bulk pellets $45; granules and oil treated, bulk $49@50.

Memphis: Demand poor; trend steady; supply ample; dehydrated, 17% protein, guaranteed 100,000 units vitamin A $54.

ANIMAL FAT (STABILIZED)

San Francisco: Demand fair; supply ample; bleachable fancy 8⅛¢ lb.; yellow grease 7⅝¢ lb.

New Orleans: Demand fair; trend firm; supply adequate; tank cars 8@8½¢ lb.

Denver: Demand fair; trend off; supply ample; bleachable fancy tallow 7¢ lb.

Ft. Worth: Demand good; supply scarce; prime tallow, tank cars 8⅛¢ lb.; drums 9⅛¢ lb., f.o.b. north Texas packing plants with returnable drums.

Louisville: Demand fair; trend steady; supply ample; bleachable white 7⅞¢ lb.; white tallow 8¢ lb.; yellow grease 6⅞¢ lb.

Chicago: Demand fair to excellent; supply tightening; bleachable fancy tallow, tank truck or carlots 7⅞@8¢ lb.; yellow grease 7⅝@7½¢ lb.

Kansas City: Demand fair; trend steady; supply adequate; bleachable fancy tallow 8¢ lb., tank cars.

St. Paul: Further weakening of price due to lack of cail in export market. Current quotation on bleachable fancy tallow 7½¢ lb., f.o.b. producers' plants.

BARLEY FEED

San Francisco: Demand fair; supply ample; rolled $58; ground $57.

Portland: Demand good; supply ample; trend unchanged; rolled $58, cleaned $56.

New Orleans: Demand fair; trend easier; supply ample; $62@65.

Ogden: Supply normal; rolled $41@45; whole $34@39.

Boston: Demand slow; supply light; $45.

Philadelphia: Demand slow; supply fair; pulverized $45.50.

Seattle: Demand fair; trend firmer; supply good; whole $56, ground $56, rolled $58, all ex-warehouse, l.c.l., sacked.

Chicago: Demand good; supply light; $37.

Baltimore: Demand good; supply light; $47.40.

Los Angeles: Demand fair; trend easier; supply plentiful; standard rolled $2.90 cwt., sacked; standard ground $2.80 cwt., sacked.

Milwaukee: Demand good; supply fair; needles 82¢@$1.06 cwt.; ground $25.

BENTONITE (SODIUM)

Cincinnati: Demand steady; supply adequate; f.o.b. Cincinnati, minimum 30-ton carlots: 30 granular $30.21; 200 mesh fine $29.96.

Denver: Demand spotty; supply ample; trend unchanged; 200 mesh $13.50, f.o.b. Wyoming and South Dakota shipping points.

Chicago: Demand steady; supply adequate; f.o.b. Wyoming and South Dakota shipping points: granular, 30 mesh $16.50; fine granular, 80 to 100 mesh $13.75; powder, 200 mesh $13.50; f.o.b. Belle Fourche, S.D., minimum 30-ton carlots: 80 granular $13.50 net; 200 mesh fine $13.25 net.

BLOOD FLOUR

Louisville: Demand fair; trend firm; supply ample; $95@105.

BLOOD MEAL

San Francisco: Demand good; supply tight; $5.75 a unit of ammonia.

Portland: Demand good; trend firm; supply unchanged; $110.

Ogden: Supply normal; $102.50 in 100-lb. bags, f.o.b. Ogden.

New Orleans: Demand good; trend firm; supply ample; $90@94.50.

Cincinnati: Demand good; trend steady; supply fair; $120; 70% protein $100.

Denver: Demand good; trend strong; supply short; $95.

Louisville: Demand fair; trend steady; supply normal; $95@105.

Chicago: Demand fair; supply tight; $120 @125, guaranteed, 80% protein.

Los Angeles: Demand fair; trend steady; supply limited; $6 a unit of ammonia.

BONE MEAL (STEAMED)

San Francisco: Demand good; supply ample; $75.

Portland: Demand good; trend and supply unchanged; $95.

Ft. Worth: Demand fair; supply adequate; $85, sacked, f.o.b. Ft. Worth, local manufacture.

Louisville: Demand slow; trend steady; supply normal; $80@85.

Cincinnati: Demand fair; trend steady; supply fair; $90, sacked, f.o.b. Cincinnati.

Boston: Demand and supply steady; $87.

Denver: Demand slow; trend steady; supply ample; $70, f.o.b. West Coast.

Seattle: Demand and trend steady; supply good; $88.50, ex-dock, truck lots.

Los Angeles: Demand slow; trend unchanged; supply adequate; imported $67.

Chicago: Demand fair; supply adequate; $75@85.

Buffalo: Demand good; trend steady; supply ample; $87.50, sacked.

BREWERS DRIED GRAINS

Boston: Demand and supply steady; 26% $61; 22% $57.50.

Cincinnati: Demand fair; trend steady; supply adequate; $56.50.

San Francisco: Demand fair; supply ample; $54.

Philadelphia: Demand slow; supply light; $61.50.

Ft. Worth: Demand slow; supply moderate; 26% $58.35, delivered Ft. Worth.

Louisville: Demand good; trend strong; supply light; $52.

Chicago: Demand fair; supply tight; 26% $51.50@52.

Buffalo: Demand and supply fair; trend steady; $53, bulk, Boston.

St. Louis: Demand fair; trend higher; supply adequate; $52.50.

Milwaukee: Demand and supply good; $52.

Los Angeles: Demand slower; trend unchanged; supply limited; $49 bulk, $53 sacked.

BREWERS DRIED YEAST

Portland: Demand good; supply ample; trend unchanged; 8½¢ lb.

San Francisco: Demand fair; supply good; 10¢ lb.

Denver: Demand slow; trend unchanged; supply ample; $10 cwt.

Louisville: Demand fair; trend steady; supply normal; 10@10½¢ lb.

Boston: Demand and supply steady; 11¢ lb.

Seattle: Demand slow; trend steady; supply ample; $12 cwt.

Chicago: Demand good; supply limited; 10@11¼¢ lb. in carlots; 10⅛@12½¢ lb., l.c.l.

Buffalo: Demand fair; trend easier; supply ample; $10.25 cwt.

Los Angeles: Demand slower; supply limited; trend unchanged; 10¢ lb. in 5-ton lots; 11¢ lb. in less than 5-ton lots.

St. Louis: Demand good; supply limited; 10¢ lb. in carlots; 11¢ lb. in ton lots; 12¢ lb. in less than ton lots.

Cincinnati: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

Pittsburgh: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

New Orleans: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

New York: Carlots 9½¢ lb.; 10-ton lots 10¢ lb.; 5-ton lots 10½¢ lb.; ton lots 11¢ lb., f.o.b. New Jersey.

Milwaukee: Demand good; supply limited; 10⅛@11½¢ lb. in carlots; 10⅝@12½¢ lb., l.c.l.

BUTTERMILK-CONDENSED

Philadelphia: Demand slow; supply fair; $4.25 cwt.

Ogden: Supply normal; $4.40, 100-lb. drum.

Boston: Demand slow; supply light; 3½¢ lb.

San Francisco: Demand fair; supply good; $5 cwt.

Los Angeles: Demand fair; trend unchanged; supply adequate; 5½¢ lb. in 100-lb. lots; 4¾¢ lb. in 500-lb. lots.

Chicago: Demand slow; supply adequate; $3.50@3.75 cwt. in carlots.

CALCITE CRYSTALS AND FLOUR

(All prices net, including freight and tax)

New York: Crystals $15.30, flour $10.30.

Buffalo: Crystals $16.16, flour $11.16.

Toledo: Crystals $18.06, flour $13.06.

Boston: Crystals $16.69, flour $11.69.

Limecrest, N.J.: Crystals $10.50, flour $5.50.

CALCIUM CARBONATE

Cincinnati: Demand fair; trend steady; supply adequate; $8@9.

Seattle: Demand and trend steady; supply good; $14, ex-warehouse, truck lots.

Los Angeles: Demand fair; trend unchanged; supply ample; $10.25.

Minneapolis: Plain $11; iodized (½ lb. KI per ton) $14.45; iodized manganese $15.90, in 100-lb. bags.

Chicago: Plain $8.90 ton in 100-lb. bags, delivered.

CHARCOAL

Cincinnati: Demand good; trend steady; supply adequate; briquets $120, 25-lb. bags, f.o.b. warehouse, Cincinnati.

Boston: Demand and supply light; $95, nominal.

San Francisco: Demand steady; supply ample; $141.

Chicago: Demand quiet; supply adequate; poultry charcoal $106 in 50-lb. multiwalls.

Los Angeles: Demand slow; trend steady; supply ample; hardwood poultry $156, less than ton lots; $144.40 ton lots.

COCONUT MEAL

Portland: Demand good; supply ample; trend unchanged; $61.

San Francisco: Demand fair; supply ample; solvent $50; expeller $53.

Seattle: Demand and trend steady; supply ample; $62, ex-dock, truck lots.

Los Angeles: Demand slow; trend unchanged; supply ample; copra cake $59, offshore, February.

COD LIVER OIL (FORTIFIED)

Boston: Demand slow; supply ample; 600 D, 2,250 A 21¢ lb.; 300 D, 2,250 A 20¢ lb.; 300 D, 1,500 A 17½¢ lb.

New York: Trend steady; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 14½@15½¢, 1,500 A 16½@19¢, 2,250 A 18½@21¢, 3,000 A 21½@23¢; 600 ICU, 1,500 A 17½@19½¢, 2,250 A 20@22¢, 3,000 A 22@23¢; f.o.b. Massachusetts, New York or Pennsylvania.

CONDENSED FISH SOLUBLES

New Orleans: Demand good; trend firm; supply light; menhaden 50% solids $100, Gulf.

Denver: Demand slow; trend steady; supply ample; dried $192.25.

Boston: Demand good; supply short; 5¢ lb.

Los Angeles: Demand slow; trend steady; supply limited; 5½¢ lb.

New York: Demand good; trend steady; supply fair; 5¢ lb., f.o.b. eastern shore.

CORN GLUTEN FEED AND MEAL

(All quotations for all cities are sacked basis, bulk basis $5 less)

Minneapolis: Feed $47.59, meal $80.59.

Atlanta: Feed $51.98, meal $86.98.

Birmingham: Feed $53.15, meal $86.15.

Boston: Feed $52.54, meal $85.54.

Chicago: Feed $41, meal $74.

Cleveland: Feed $47.93, meal $81.93.

Denver: Feed $51.20, meal $84.20.

Ft. Worth: Feed $49.65, meal $82.65.

Indianapolis: Feed $46.15, meal $79.15.

Kansas City: Feed $41, meal $74.

Louisville: Feed $48, meal $81.

New Orleans: Feed $50.78, meal $83.78.

New York: Feed $52.12, meal $85.12.

Norfolk: Feed $51.40, meal $84.40.

Philadelphia: Feed $51.71, meal $84.71.

Pittsburgh: Feed $49.65, meal $82.65.

St. Louis: Feed $41, meal $74.

CORN OIL MEAL

Cincinnati: Demand good; trend steady; supply adequate; $51.

Louisville: Demand slow; trend steady; supply ample; $49.98.

COTTONSEED OIL MEAL

Wichita: Demand fair; supply sufficient; 41% old process $64.

Denver: Demand slow; trend steady; supply ample; $61.

Cincinnati: Demand fair; trend steady to higher; supply adequate; solvent $70; old process $72.

Louisville: Demand fair; trend easy; supply ample; old process $68; new process $67.

Boston: Demand fair; supply adequate; $76.40.

Seattle: Demand fair; trend weak; supply good; 41% expeller process $62, delivered, truck lots.

San Francisco: Demand good; supply ample; solvent $54.50; expeller $55.50.

Ogden: Supply normal; 41% $65@70.

Portland: Demand slow; supply ample; trend unchanged; truck $58, rail $68.

Philadelphia: Demand slow; supply fair; $73.75.

Ft. Worth: Demand fair; supply sufficient; carlots: 41% old process $58 f.o.b. Waco area, $60 f.o.b. Ft. Worth area; solvent 41% low gossypol $56@57, delivered Ft. Worth; pellets $2 additional; cottonseed hulls $20, f.o.b. Ft. Worth.

Memphis: Demand light; trend steady; supply adequate; prime 41% protein, old process $57, sacked; new process 41% protein $57, sacked.

Atlanta: Demand good; trend strong; supply limited; 41% $63, sacked, immediate.

PIG STARTER AND GROWER?
Tastelation
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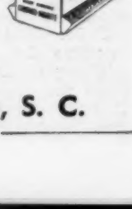
SUPREME RI-STONE SHARP-INSOLUBLE

GRANITE GRIT

The demand for Sparkling Ri-Stone Granite Grit is growing by leaps and bounds. Sales are more than double that of last year. Poultry Raisers find Ri-Stone's harder, sharper grinding edges enable them to get faster growth and more and larger eggs at lower costs. Every month more raisers are learning about Ri-Stone through its regular advertising in poultry publications reaching approximately a million operators per month.

Yes, Ri-Stone means added profits to both feed dealers and poultry raisers. Your inquiry is invited. Write for copy of Poultry Grit Facts.

Get Ri-Stone in the economical 80 lb. bags. A size for all ages. Fine, Medium, Coarse and Turkey sizes.



Fine Aggregate Division
RION CRUSH STONE CORP., Rion, S. C.
QUARRIERS OF GRANITE FOR OVER 70 YEARS.

Buffalo: Demand fair; trend steady to higher; supply adequate; $76.25, sacked, Boston.

Los Angeles: Demand slow; trend steady; supply ample; $53@54.

Kansas City: Demand fair; trend steady; supply adequate; old process meal $57@58, sacked, Memphis; solvent meal $55.50@56.50.

Chicago: Demand slow; supply adequate; hydraulic $70@70.50; solvent $69.50@70.

St. Louis: Demand slow; trend steady; supply fair; $62.75.

CURACAO PHOSPHATE

New York: Trend steady; ground Curacao phosphate in 100-lb. bags $48, f.o.b. cars or trucks, New Orleans, Jacksonville, Fla., or Philadelphia.

D ACTIVATED ANIMAL STEROL, POWDERED

Cincinnati: Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢ lb.; 3,000 ICU 18¢ lb., warehouse.

New York: Trend steady; price per lb. in 50- and 100-lb. bags or 100-lb. drums: 1,500 ICU 8@12¢ bagged, 12@13¢ drums; 3,000 ICU 13@17¢ bagged, 17@18¢ drums; f.o.b. or delivered, basis Pennsylvania, Delaware or New York.

D ACTIVATED PLANT STEROL, POWDERED

Chicago: Demand good; supply adequate; 4,000,000 U.S.P. units per lb.; 15¢ lb. in ton lots; less than ton lots 17¢ lb.; 12,000,000 units per lb., 5 tons to a carload 28¢ lb.; ton lots and less 30¢ lb.

DEFLUORINATED PHOSPHATE

Cincinnati: 18% phosphorus $81, sacked; 13% phosphorus $64.98, sacked, f.o.b. Cincinnati.

Coronet, Fla.: Minimum phosphorus 17%, minimum calcium 34%, maximum fluorine .17%, carload $60, truckload $60.75, net ton, f.o.b. Coronet in 100 lb. multiwall bags, $57 and $57.75 in bulk.

Tupelo, Miss.: Minimum phosphorus 13%, minimum calcium 31%, maximum fluorine .12%, $51 net ton, f.o.b. Tupelo in 100-lb. multiwall bags, $48 in bulk.

Wales, Tenn.: Minimum phosphorus 18%, minimum calcium 33%, maximum calcium 36%, maximum fluorine .18% $69.12 net ton, f.o.b. Wales, in 100-lb. multiwall bags, $3 less in bulk.

Houston: Minimum phosphorus 19%, minimum calcium 32%, maximum calcium 35%, maximum fluorine .19% $69.50 net ton, f.o.b. Houston, 100-lb. multiwall paper bags; $66.50 in bulk.

DICALCIUM PHOSPHATE

Portland: Demand slow; supply ample; trend unchanged; $105.

Cincinnati: 18½% phosphorus $92@93.

Texas City, Texas: 19% minimum phosphorus, 25% minimum calcium, 28% maximum, 0.11% maximum fluorine, granular $79.80 net ton, f.o.b. Texas City in 100-lb. multiwall bags; 18.5% minimum phosphorus, 25% minimum calcium, 28% maximum, 0.11% maximum fluorine, granular $77.70 net ton, f.o.b. Texas City in 100-lb. multiwall bags; bulk, boxcars and hoppers $3 net ton less than bagged material.

Columbia, Tenn.: Minimum phosphorus 18¼%, minimum 25% calcium, maximum .01% fluorine guaranteed $83.25, f.o.b. Columbia, in 100-lb. multiwall bags; freight equalized with nearest producing point, carload basis; bulk $3 ton less.

Chicago: Stock food grade, 18.5% phosphorus, 20,000 lb. or more $83.25 net ton in 100-lb. papers, basis Chicago Heights, Ill., or Nashville, Tenn.; less than 20,000 lb. $93.25; 21% phosphorus, 20,000 lb. or more, $94.50 basis Chicago Heights and Nashville; less than 20,000 lb. $104.50; bulk boxcars or hoppers $3 net ton less than bagged material.

Bonnie, Fla.: Minimum phosphorus 18½%, granular $83.25; freight equalized with closest producing point, carload basis.

Minneapolis: 18.5% phosphorus, 24% calcium granular or fine ground $93.90, delivered; $3 less in bulk.

Trenton, Mich.: Minimum phosphorus 18½%, maximum fluorine .03% guaranteed $83.25, f.o.b. Trenton in 100-lb. multiwalls; minimum phosphorus 21%, maximum fluorine .03% guaranteed $94.50, f.o.b. Trenton in 100-lb. multiwall bag.

DISTILLERS DRIED GRAINS

Cincinnati: Demand fair; trend steady; supply adequate; light $56.50@57; dark $59.50@60.

San Francisco: Demand fair; supply ample; solubles $85.

Philadelphia: Demand slow; supply light; $62.

Louisville: Demand good; trend steady; supply light; February prices: bourbon, light $53, dark $54, solubles $77.

Boston: Demand fair; supply adequate; light $61, dark $62.

Seattle: Demand fair; trend steady; supply ample; $63, delivered, truck lots.

Buffalo: Demand fair; trend steady; supply adequate; $58.50, bulk, Boston.

DRIED BEET PULP

Cincinnati: Demand fair; trend higher; supply adequate; $55.

Boston: Demand fair; supply short; $60.50.

San Francisco: Demand good; supply fair; $43.02.

New Orleans: Demand good; trend steady; supply sufficient; $58@64.

Ft. Worth: Demand slow; supply sufficient; carlots, 50 lb. papers $57.85, February, delivered Ft. Worth,

Portland: Demand good; supply ample; trend unchanged; $50.

Ogden: Supply normal; $38@42.

Seattle: Demand slow; trend steady; supply good; $43, delivered, carlots, new crop.

Atlanta: Demand slow; trend weak; supply ample; $64.25, sacked, immediate.

Buffalo: Demand and supply fair; trend higher; $60.50, sacked, Boston.

Los Angeles: Demand and trend steady; supply ample; molasses $45.50.

Milwaukee: Demand and supply fair; plain $50, molasses $50.

DRIED BUTTERMILK

San Francisco: Demand fair; supply ample; 11¢ lb.

Wichita: Demand slow; supply sufficient; $8 cwt.

Louisville: Demand slow; trend steady; supply normal; 10¾@11¢ lb.

New Orleans: Demand slow; trend firm; supply sufficient; $9@10 cwt.

Ogden: Supply normal; $7.25, 100-lb. bag.

Ft. Worth: Demand very slow; supply sufficient; local production $10 cwt., f.o.b.

Chicago: Demand and supply fair; medium acid $9@9.50; sweet cream $9.25@9.75 cwt., in carlots.

Buffalo: Demand fair; trend steady; supply limited; $10.45 cwt.

Minneapolis: Steady market with good demand and fair supplies; $9.50@9.75 cwt.

Los Angeles: Demand slow; trend unchanged; supply adequate; 11¢ lb.

Milwaukee: Demand and supply fair; $9.50.

DRIED CITRUS PULP

San Francisco: Demand good; supply fair; meal $52.

New Orleans: Demand good; trend steady; supply sufficient; $49@52, immediate.

Boston: Demand fair; supply short; $41, f.o.b. Florida.

Atlanta: Demand fair; trend steady; supply ample; $49, sacked, immediate; meal $44, sacked, immediate.

Los Angeles: Demand good; trend firm; supply very limited; orange pulp $39 bulk, $44 sacked; lemon pulp $37 bulk, $42 sacked.

Buffalo: Demand fair; supply nil; unquoted.

DRIED SKIM MILK

Portland: Demand slow; supply ample; trend unchanged; $12.50 cwt.

New Orleans: Demand slow; trend steady; supply sufficient; $11@12 cwt.

San Francisco: Demand and supply fair; 13½¢ lb.

Cincinnati: Demand fair; trend steady; supply adequate; 10½@11¢ lb.

Boston: Demand slow; supply fair; 12¢ lb.

Louisville: Demand slow; trend firm; supply ample; 10¼@11¢ lb.

Ogden: Supply normal; $15.15, 100-lb. drum.

Philadelphia: Demand slow; supply fair; $12.50.

Milwaukee: Demand and supply fair; $10.75.

Chicago: Demand improved; supply tightening; $10.25@10.50 cwt. in carlots.

Los Angeles: Demand slow; trend unchanged; supply adequate; 14¢ lb., less than ton lots; 13¾¢ lb. in ton lots.

Buffalo: Demand fair; trend steady; supply ample; spray $10.65 cwt.; roller $11.50 cwt.

Minneapolis: Steady trend with fair to good demand; supplies adequate; $10.50@11.

DRIED WHEY

Denver: Demand slow; supply ample; trend unchanged; $7 cwt., $6.10 car lots.

Seattle: Demand and trend steady; supply good; $6.25 cwt., ex-warehouse, l.c.l.

Cincinnati: Demand fair; trend steady; supply adequate; $5.35 cwt.; sweet $5.75 cwt.

Louisville: Demand fair; trend steady; supply ample; 6@6½¢ lb.

Boston: Demand steady; supply plentiful; $5.90 cwt.

Ft. Worth: Demand fair; supply adequate; carlots, standard $6.10 cwt., sacked, delivered Ft. Worth or any Texas point or in ton lots, f.o.b. warehouse, Ft. Worth.

San Francisco: Demand steady; supply good; $5.50 cwt.

New Orleans: Demand fair; trend steady; supply adequate; $6@6.10 cwt.

Portland: Demand slow; supply ample; trend unchanged; $6.05 cwt.

Philadelphia: Demand slow; supply fair; $6.25 cwt.

Ogden: Supply normal; $6.90, 100-lb. bag.

Los Angeles: Demand fair; trend unchanged; supply adequate; $5.75 cwt. in carloads; $6 cwt. in l.c.l.

Minneapolis: Steady trend with good demand and adequate supply; $5.40@5.60; other quotations $5.10, f.o.b. plants.

Chicago: Demand slow; supply fair; $5.35 cwt. in carlots.

FEATHER MEAL (HYDROLYZED)

Boston: Demand steady; supply plentiful; $78, f.o.b. eastern shipping points.

FISH MEAL

Louisville: Demand slow; trend steady; supply ample; $130@140.

Denver: Demand fair; supply ample; trend unchanged; 70% herring $2.10 a unit, f.o.b. Seattle; 60% menhaden $132, f.o.b. Gulf.

Cincinnati: Demand fair; trend steady; supply adequate; $120@130.

Boston: Demand steady; supply plentiful; 60% $130, f.o.b. eastern shipping points.

Seattle: Demand fair; trend firm; supply ample; $2.20 a unit protein, f.o.b. truck, Vancouver, B.C.

Portland: Demand slow; trend higher; supply limited; $2.25, Vancouver; import $2 a unit of protein.

Ft. Worth: Demand fair; supply sufficient; imported Angola sardine 60% protein and Peruvian Anchovy 65% protein $128, f.o.b. Houston, immediate.

New Orleans: Demand light; supply moderate; menhaden 60% $126@130, papers, Gulf; scrap $122@126, papers; mixed meal, Peru $127, burlaps, f.o.b. Gulf.

Ogden: Supply normal; $2.20 a unit, f.o.b. Coast; 65% $151@153.

San Francisco: Demand fair; supply ample; Peruvian Anchovy meal $2.15 a unit of protein.

Atlanta: Demand fair; trend steady; supply limited; 60% $133, sacked, immediate.

Chicago: Demand fair; supply scarce; eastern menhaden fish meal, 60% protein $128@130; western blended, 60% protein $118@120; Northwest herring-salmon blend $118@120; Canadian herring, 73% protein $2.05@2.10 a unit of protein; 60% blended $150, delivered Midwest points.

Buffalo: Demand good; trend steady; supply limited; 60% protein menhaden $140 sacked, $145 bulk.

Minneapolis: Trend steady; adequate supplies; fair demand; 70% Canadian herring, West Coast $2.05 a unit of protein; 60% meal, delivered, Minneapolis $147.

Los Angeles: Demand good; trend firmer; supply scarce; $2.15 a unit of protein.

Milwaukee: Demand good; supply fair; 60% $157, Milwaukee.

HAY

Portland: Demand slow; supply ample; trend unchanged; $25.

Philadelphia: Demand slow; supply fair; $30@32.

Ogden: Supply normal; $1 bale; $16 in field; $20, delivered.

Ft. Worth: Demand slow for alfalfa, practically nil for prairie and Johnson grass; supply sufficient; carlots, baled, No. 1 alfalfa $40@42, No. 2 $38@40; prairie No. 2 $28@30; No. 2 Johnson grass $26@28, delivered Texas common points.

Wichita: Demand slow; supply ample, prairie $16@18; alfalfa $16@24.

Denver: Demand slow; trend steady; supply ample; baled alfalfa $25@26; baled mountain $30@34.

Boston: Demand steady; supply ample; No. 2 timothy $38@40.

Louisville: Demand slow; trend steady; supply good; local hay, any variety, No. 1 $20@25, No. 2 $19@23; straw $18@20.

Cincinnati: Demand fair; trend steady; supply adequate; No. 1 timothy $22.50; No. 1 red clover $24; No. 1 second cutting green alfalfa $28; No. 1 red clover mixed $27; wheat or oat straw $22.

Seattle: Demand slow; trend steady; supply good, alfalfa, U. S. No. 2 green $25, delivered truck lots.

Los Angeles: Receipts very light; demand fair; U.S. No. 1 $32@34; U.S. No. 2, leafy $30@31; U.S. No. 2, green $30@31; U.S. No. 2 $27@28.

HOMINY FEED

Boston: Demand steady; supply adequate; $47 in bulk.

Louisville: Demand fair; trend firm; supply ample; $45.65.

Cincinnati: Demand good; trend lower; supply adequate; $43.50.

Seattle: Demand slow; trend easy; supply good; $54, delivered, sacked, carlots.

New Orleans: Demand fair; trend easier; supply adequate; $50@50.50.

St. Louis: Demand slow; trend steady; supply ample; yellow $42.

Memphis: Demand nil; trend steady; supply ample; white $47.50, yellow $47.50.

Chicago: Demand fair; supply improving; $40.50@41.

Milwaukee: Demand and supply good; $41, sacked, Milwaukee.

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Kansas City, St. Louis, Chicago, Buffalo, Omaha, Toledo, Columbus, Fort Worth, Portland, Boston, Galveston, Enid, Minneapolis, Norfolk, San Francisco, Nashville, Louisville, Memphis, Houston

Buffalo: Demand fair; trend lower; supply good; $47, bulk, Boston.

Kansas City: Demand slow; trend weak; supply ample; yellow $34.50@35, bulk, Kansas City, 50¢@$1 less for white; $3.50 more for sacked.

LINSEED OIL MEAL

New Orleans: Demand fair; trend steady; supply adequate; 32% or higher protein $69.50@70.

Portland: Demand slow; supply ample; trend unchanged; $78.

Ft. Worth: Demand slow; supply adequate; carlots, 34% extracted, February-March $72.13.

San Francisco: Demand fair; supply ample; $65.

Louisville: Demand fair; trend steady; supply normal; old process $71.30; new process $65.30.

Philadelphia: Demand and supply fair; 34% $69.50.

Cincinnati: Demand fair; trend steady; supply adequate; new process $62; old process $69.

Boston: Demand and supply limited; 34% old process $64 in bulk.

Wichita: Demand fair; supply sufficient; 34% $73.50.

Denver: Demand slow; supply ample; trend stronger; $71.

Seattle: Demand slow; trend easy; supply limited; $76, delivered, carlots, 34% protein.

Minneapolis: Trend steady; demand good; supplies adequate; $47.50; flaxseed screenings oil feed $31.50.

Los Angeles: Demand slow; trend unchanged; supply adequate; local production 29% protein $61@62.

Milwaukee: Demand good; supply fair; old process $63.50; new process $57.50.

Chicago: Demand fair; supply adequate; solvent $59@59.50; expeller $64.50@65.

Kansas City: Demand slow; trend steady; supply adequate; solvent meal $47.50, bulk, Minneapolis; old process meal $53.50.

MALT SPROUTS

Boston: Demand spotty; supply limited; $43.50 in bulk.

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Cincinnati: Demand fair; trend steady; supply adequate; No. 1 $44.

New Orleans: Demand spotty; supply limited; trend steady; $43.50@44, bulk.

Chicago: Demand fair; supply adequate; No. 1 $34.50@35.

Milwaukee: Demand fair; supply good; oddweights $36, evenweights $40.

MEAT AND BONE MEAL

New Orleans: Demand fair; trend steady; supply ample; 50% $79.50@80.

Ft. Worth: Demand good; supply light; 50% $82, f.o.b. or delivered Ft. Worth.

San Francisco: Demand fair; supply ample; $1.50 a unit of protein.

Ogden: Supply average; $82.50, in 100-lb. bags.

Portland: Demand slow; supply ample; trend unchanged; $1.40 a unit of protein.

Seattle: Demand and supply good; trend easy; $77.50, ex-warehouse, 50% protein.

Wichita: Demand good; supply insufficient; 50% $90, f.o.b. plant; 55%, no quotations, no offerings.

Denver: Demand strong; supply limited; trend strong; 50% $72.50.

Boston: Demand improved; supply fair; $1.15 a protein unit; converted 50% $70.

Louisville: Demand good; trend steady; supply normal; $80@90.

Cincinnati: Demand good; trend strong; supply short; 50% $84.50, sacked, f.o.b. Cincinnati.

Los Angeles: Demand good; trend firmer; supply limited; $1.60@1.65 a unit of protein.

St. Paul: Prices continue strong but less interest noted; supplies ample to meet demand; 50% meat and bone scraps $82.50 @90.

New York: Demand and supply good; trend lower; 50% $67.50, 55% $73, bulk; 50% $70.50, 55% $76, sacked.

Chicago: Demand fair; supply tight; 50% protein $80@82.50.

Buffalo: Demand good; trend stronger; supply ample; 50% meat scraps $80 bulk, $85 sacked.

Kansas City: Demand strongest from country trade; trend steady; supply tight because of smaller production; 50% meat and bone scraps $85, sacked.

St. Louis: Demand good; trend steady; supply limited; $85.

MILLFEED

Minneapolis: Market firm; good demand; tight supplies; bran and standard midds. $34.50; flour midds. $37@38; red dog $38 @39.50.

Kansas City: Demand slacked off slightly but has been strong "especially from country trade, snow in area helped create demand; trend steady to slightly weaker; supply not so tight as it has been, although sacked shorts are still scarce; bran $35.25@36, shorts $36@36.75, sacked; bran $31@31.75, shorts $33.25@34, middlings $31.50@32, bulk.

Wichita: Demand good, with shorts in stronger demand than bran; supply insufficient; basis Kansas City: bran $35.50@36, shorts $36@36.50; both bran and shorts advanced $2.25, compared with the preceding week.

Ft. Worth: Demand fairly active; supply extremely light; carlots, burlaps, prompt, bran $43.50@44.50; gray shorts $44.50@45.50, delivered Texas common points; $2 higher on both bran and shorts compared with previous week.

Chicago: A little better demand for millfeeds developed in the last days of the week ending Jan. 29. Southwestern buyers were said to be drawing some supplies from the Northwest, which cut into the availability of milling offals for this area. Bran and standard midds. showed some price stimulation, while other types held firm. Quotations: bran $39.50@40, standard midds. $39.50@40, flour midds. $40@41, red dog $42@43.

St. Louis: Demand good; trend higher; supply adequate; bran $40.50@41, shorts $41.25@41.75, sacked; bran $37@37.50, shorts $37.50@38, middlings $37@37.50, bulk.

Cincinnati: Demand fair; trend steady; supply adequate; bran $45.50; middlings $46.50.

Boston: Demand fair; supply limited; bran $50, middlings $50.50@51.

Buffalo: Steady spot demand, coupled with erratic flour mill running time, with some on the light side, held millfeed prices firm and kept shipping positions comfortable. Red dog was strong on better orders from the South. Bran held unchanged; middlings were up 50¢ and red dog gained $2.50. Quotations Jan. 29: bran $42.50@43, standard midds. $42.50@43, red dog $47. The bulk differential on both bran and middlings was $4.50.

New York: Demand and supply good; trend upward; bran $50.50@51, standard midds. $51@51.50.

Philadelphia: Demand dull; supply fair; bran $50, standard midds. $51, red dog $52.60.

New Orleans: Demand fair; supply limited; trend stronger; bran and shorts $45@46.50.

Memphis: Demand fair; trend steady; supply scarce; wheat bran $43.50, gray shorts $44, standard midds. $44.

Louisville: Demand good; trend strong; supply fair; bran $46.85, mixed feed $47.50, shorts $48.65, middlings $46.80.

Seattle: Demand good; trend strong; supply very limited; $40, delivered common transit points, carlots.

Portland: Demand good; supply limited; trend higher; $39.

Ogden: Supply average; to Utah and Idaho: red bran and mill run $35, middlings $40; to Denver: red bran and mill run $42, middlings $47; to California: red bran and mill run $42.50, middlings $47.50, f.o.b. San Francisco and Los Angeles.

Denver: Demand good; trend strong; supply close; bran $39, shorts $39.50, mill run $39.25.

San Francisco: Demand fair; supply ample; millfeed $43.75, red bran $48.75.

Los Angeles: Demand good for nearby; trend stronger; supply very tight on nearby; standard mill run $45@46; red bran $52 @53.

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MINERAL FEED

Ft. Worth: Demand fair; supply ample; all-purpose granules $89, block $94; mineral phosphorus 6% granules $105, block $110; cattle-sheep mineral 7% phosphorus granules $99, block $103; hog mineral phosphorus 3½% granules $88; phosphorus 2% $78 (all in 50-lb. paper bags).

Ogden: Supply normal; $110 in 50-lb. blocks; $98, granular, 50-lb. bags.

San Francisco: Demand steady; supply good; all-purpose with iodine $70.

Portland: Demand slow; supply ample; trend unchanged; $42.

Wichita: Demand good; supply adequate; all-purpose with iodine, 50-lb. blocks $95; 100-lb. bags $90, f.o.b. plant.

Denver: Demand fair; supply ample; trend unchanged; 7.5% phenothiazine, 45-lb. block $4.50; 8.2% phosphorus, 50-lb. block $3.50; 7.5% phenothiazine, 8.2% phosphorus, 45-lb. block $5.25; 5% phosphorus, 50-lb. block $2.65

Seattle: Demand fair; trend steady; supply good; mixer mineral $48, ex-warehouse; all-purpose mineral $85, ex-warehouse.

Sioux City: 50-lb. mineral blocks 8.2% phosphorus $82; 7.5% phenothiazine sheep mineral blocks $4 each.

MOLASSES

Boston: Demand steady; supply plentiful; 18¼¢ gal. in tank cars.

Seattle: Demand fair; trend easy; supply good; $24, f.o.b. Seattle, tank car lots or truck lots.

Louisville: Demand good; trend steady; supply ample; 13½¢ gal. tank car lots, f.o.b. Gulf ports.

Denver: Demand slow; trend steady; supply ample; $44.92, tank car.

Cincinnati: Demand fair; trend steady; supply adequate; 13½¢ gal., New Orleans.

Ft. Worth: Demand fair; supply sufficient; blackstrap 14¢ gal., f.o.b. Houston; delivered Ft. Worth truck $31.64, seller's market price on date of shipment.

New Orleans: Demand fair; trend firmer; supply sufficient; 14¢ gal. in tank cars; 13½¢ gal. trucks; 600-lb. customers' drums $9.11.

San Francisco: Demand and supply good; $24, f.o.b. cars, Richmond, Cal.

Kansas City: Demand fair; trend steady; supply adequate; 13¼¢ gal., f.o.b. tank car, New Orleans.

St. Louis: Demand slow; trend steady; supply ample; 13¼¢ gal., New Orleans.

Memphis: Demand poor; trend steady; supply ample; blackstrap 13¼¢ gal., tank car, f.o.b. New Orleans.

Atlanta: Demand fair; trend steady; supply ample; citrus $18, bulk, f.o.b. Florida producing points, immediate.

Los Angeles: Demand and trend steady; supply ample; $24 bulk, tank cars; $24.25 bulk, tank trucks.

New York: Demand poor; trend steady; supply good; blackstrap 18¢ gal., tank cars, tank wagons, f.o.b. New York.

Milwaukee: Demand and supply fair; blackstrap 13½¢ gal., f.o.b. New Orleans.

Buffalo: Demand and supply good; trend steady; 18¼¢ gal., f.o.b. Albany.

Minneapolis: Market steady with supply and demand good at 13¼@13½¢ gal., New Orleans.

NIACIN

New York: Trend steady; $8 kilo, 50-kilo lots; $8.10 kilo, 10-kilo lots; $8.20 kilo, 5- and 2½-kilo lots; $8.30 kilo, 1-kilo lots; freight prepaid or paid to destination.

OAT PRODUCTS

Chicago: Demand fair; supply adequate; reground oat feed $17@17.50; fine ground feeding oatmeal $69@70; feeding rolled oats $81.

Boston: Demand and supply fair; white pulverized $53; reground oat feed $25.75.

Seattle: Demand fair; trend firmer; supply ample; whole $58, ground $58, rolled $61, all ex-warehouse, l.c.l., sacked.

Cincinnati: Demand fair; trend steady; supply adequate; reground oats $22; pulverized white oats $49; rolled oats $85.

Philadelphia: Demand slow; supply light; pulverized white $53; Canadian oat feed $31.50; domestic oat feed $27.

Portland: Demand slow; supply ample; trend unchanged; rolled $59, ground $56, cleaned $59.

Ft. Worth: Demand fair; supply sufficient; oat millfeed $42.45; reground oat millfeed, 3% protein, sacked $36.45.

New Orleans: Demand fair; trend steady; supply adequate; $69@69.50 ground; pulverized 50¢ higher.

Memphis: Demand poor; trend steady; supply scarce; 3½% protein, reground oat feed $23.80.

Minneapolis: Market steady; demand equal to supply; feeding rolled oats $81; standard pulverized oats $43@44; feeding oatmeal $68@70; crimped $58; reground $17@19.

OYSTER SHELL

New Orleans: Demand fair; trend steady; supply ample; $16@21.75.

San Francisco: Demand fair; supply ample; local $15, eastern $26.

Portland: Demand slow; supply ample; trend unchanged; western $30, eastern $38, granite grits $26, shell flour $16.

Cincinnati: Demand fair; trend steady; supply adequate; $21.75.

Boston: Demand and supply steady; in paper $25.24.

Seattle: Demand and trend steady; supply good; eastern $39, l.c.l., ex-warehouse.

Louisville: Demand good; trend steady; supply normal; in 80-lb. paper $23.17, 50-lb. $23.42, 25-lb. $25.67.

Los Angeles: Demand slower; supply ample; trend steady; $14.80.

PEANUT OIL MEAL

Atlanta: Demand fair; trend strong; supply limited; 45% $58, sacked, immediate.

Milwaukee: Demand and supply fair; 26% $36.50.

PEAT MOSS

Boston: Demand and supply steady; $3.15 bale in carlots.

San Francisco: Demand fair; supply ample; $3.75 bale.

Philadelphia: Demand slow; supply light; $2.98, f.o.b. pier.

Portland: Demand slow; supply ample; trend unchanged; $3.25 bale.

Seattle: Demand fair; trend easy; supply good; $3.25 bale, delivered, truck lots.

Chicago: Demand and supply moderate; $3.85@3.95, standard 7½ cu. ft. bale.

Los Angeles: Demand better; trend steady; supply adequate; Canadian, 6.1 cu. ft. bales $3.85.

POTASSIUM IODIDE, U.S.P.

Cincinnati: Demand good; trend steady; 90% KI in calcium stearate or carbonate mixtures, 250-lb. drums $1.81, 200 lb. in 100-lb. drums $1.83, 25-lb. drums $1.86, f.o.b. Cincinnati.

New York: Trend steady; granular or crystals $1.90 lb. in 250-lb. drums, $1.92 lb. in 100-lb. drums, $1.95 lb. in 25-lb. drums; 90% KI in calcium stearate or carbonate mixtures, $1.81 lb. in 250-lb. drums or 200-lb. lots, $1.83 lb. in 100-lb. drums, $1.86 lb. in 25-lb. drums; f.o.b. New York, New Jersey or Pennsylvania; freight allowed to destination on 100-lb. drums or larger packings.

RIBOFLAVIN

Cincinnati: Trend steady; feed grade (in feed supplements) 4¢ gram in 3.36 to 16 gm./lb. mixtures; freight prepaid or paid to destination.

New York: Trend steady; feed grade (in feed supplements) 4½¢ gram in 3.36 to 16 gm./lb. mixtures, freight prepaid or paid to destination.

RICE BY-PRODUCTS

San Francisco: Demand fair; supply ample; bran $45, polished $49.

Ft. Worth: Demand fair; very light offerings; carlots, rice bran, nominal $32@33, prompt shipment, f.o.b. south Texas rice mills; hulls $2, f.o.b. mills.

Atlanta: Demand fair; trend steady; supply limited; bran $47, sacked, immediate.

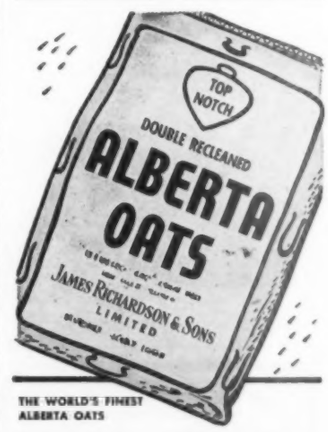
Los Angeles: Demand fair; trend firm; supply limited; bran, California production, high fat content $55.

SCREENINGS

Cincinnati: Demand fair; trend steady; supply adequate; Canadian $21.50, bulk, Cincinnati.

Denver: Demand slow; trend steady; supply ample; $28.

Ft. Worth: Demand very slow; supply sufficient; 12% protein, ground $29@30, nominal.



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Chicago: Demand fair; supply plentiful; ground grain screenings $27; Canadian, bulk $16.50.

Buffalo: Demand fair; trend steady to lower; supply good; ground, sacked $27.25, New York; unground, bulk $19, New York.

Minneapolis: Flaxseed screenings a little stronger with demand up slightly. Canadian supplies good with rather poor demand, domestic screenings in light supply with fair demand; country run $16@20; lights $5@12; mediums $13@20; heavies $21@30; Canadian, bulk $10.50; Canadian ground $18; flaxseed screenings $20@21; oil type flax screenings, 15% basis $24, nominal.

SOFT PHOSPHATE WITH COLLOIDAL CLAY

Atlanta: $20.40@20.67.
Buffalo: $25.31@25.45.
Chicago: $24.77@24.90.
Cincinnati: $23.47@23.60.
Des Moines: $25.23@25.35.
Kansas City: $24.88@25.
Memphis: $22.20@22.47.
Minneapolis: $25.92@26.06.
Philadelphia: $24.32@24.45.
St. Louis: $24.14@24.27.

SORGHUMS

Ft. Worth: Demand slow; supply sufficient; carlots, bulk, No. 2 yellow milo $2.19@2.21, Texas common points.

Cincinnati: Demand fair; trend steady; supply adequate; $2@2.20 cwt.

Los Angeles: Demand slower; supply ample; trend easier; $2.40 cwt., bulk.

SOYBEAN OIL MEAL

Chicago: Some pick-up in demand for soybean oil meal was apparent in the last few days of the week ending Jan. 29 in the central states, but prices failed to respond to the upward lift. No change in quotations was noted for the period. Nearby supplies are in demand and this week shipment material is getting tight. Quotations: 44% soybean oil meal $54.50@55.

Decatur: Demand and supply fair; 44% bulk, unrestricted $44.50@45.

Minneapolis: Steady trend; good demand; adequate supply; $50.50@51.

Ogden: Supply normal; $81@86.

Philadelphia: Demand spotty; supply ample; $43.50, bulk, Decatur.

San Francisco: Demand fair; supply ample; $73.52.

New Orleans: Demand fair; trend higher; supply adequate; 44% $66.50@67.

Ft. Worth: Demand good; supply sufficient; carlots, 44% $65@67, depending on origin and tonnage, scattered February-March; $1@1.50 higher April-June shipment; truck delivery, prompt $61@62.

Portland: Demand slow; supply ample; trend higher; $39.50.

Denver: Demand slow; supply ample; trend unchanged; $67.

Boston: Demand spotty; supply steady; 44% $43; 50% $49, both bulk, Decatur.

Los Angeles: Demand slow; trend steady; supply ample; $74.02.

Kansas City: Demand fair; trend steady; supply adequate; meal for Kansas City and western shipment $42@42.50, bulk, Decatur; unrestricted meal $44@45.

St. Louis: Demand good; trend steady; supply ample; $54.50.

Seattle: Demand steady; trend firmer; supply good; $76, delivered, carlots.

Louisville: Demand fair to good; trend stronger; supply ample; up 50¢, $56.23.

Wichita: Demand good; supply ample; 44% $58, 50% $66, f.o.b. Wichita.

Cincinnati: Demand fair; trend steady to easier; supply adequate; $44, bulk, Decatur.

Memphis: Demand light; trend steady; supply plentiful; prime 44% solvent $52, sacked, f.o.b. Memphis.

Atlanta: Demand fair; trend weak; supply ample; 44% $61, sacked, immediate.

TANKAGE

Louisville: Demand fair; trend steady; supply ample; 60% $87.50@92.50.

Kansas City: Demand slacked off some from mixers but country trade and truck demand is still good; trend steady; supply tight because of small production; 60% digester $90, sacked.

St. Louis: Demand good; trend steady; supply limited; $85.

Chicago: Demand fair; supply adequate; 60% protein $85@87.50.

St. Paul: Trend steady; supplies tighter but still ample to meet slower demand; $87@90 for 60% digester.

Ft. Worth: Demand fair; supply light; 60% digester $84, f.o.b. Ft. Worth.

New Orleans: Demand fair; trend firm; supply adequate; 60% $96.50@98.

Wichita: Demand good; supply insufficient; 60% $90, f.o.b. plant.

Cincinnati: Demand fair; trend steady; supply ample; 60% digester $90, sacked, f.o.b. Cincinnati.

VITAMIN E FEED SUPPLEMENT

Cincinnati: Demand good; trend steady; any quantity in 100-lb. drums $1.70; in 25-lb. drums $1.75, freight allowed to destination.

Rochester, N.Y.: Demand and supply good; trend steady; 100-lb. drums $1.70 lb., 25-lb. drums $1.75 lb., f.o.b. manufacturing plants, freight allowed and goods insured to destination.

New York: Demand and supply good; trend steady; 100-lb. drums $1.70 lb., 25-lb. drums $1.75 lb., f.o.b. manufacturing plants, freight allowed and goods insured to destination.

WHEAT GERM MEAL

Chicago: Firmer trend because of tighter supplies; demand fair; $59.

New Orleans: Demand fair; trend steady; supply ample; $60@62.50, cottons.

Buffalo: Demand and supply fair; trend steady; commercial grade $55, sacked, f.o.b. Buffalo.

Columbus Feed Club To Hear Sports Editor

COLUMBUS, OHIO — Tom Keys, executive sports editor of the Columbus (Ohio) Citizen, will be the guest speaker at the Feb. 3 meeting of the Columbus Feed Club. The meeting is set for the Seneca Hotel.

Mr. Keys will be presented by Howard Moore. He is scheduled to talk on baseball.

BROILERS

(Continued from page 1)

January, and the price soared from the 15¢ level to beyond 20¢ in a matter of days. Some persons attributed this week's lull to failure of consumers to buy higher priced chicken.

The January price increases came in the face of increased marketings in some areas, with the strong demand and higher prices attracting considerable attention.

Three Factors Cited

One economist said the price strength probably was caused by three factors: (1) Probably the biggest factor was cold weather in the Southeast during which birds were lost or set back. (2) Losses from the recent unusual "disease condition," especially in the Southeast, affected the market. Estimates of losses varied widely, but one estimate of around 10 million birds was made. (3) Broilers were strengthened by higher prices in the total meat picture.

Robert Alexander, head of the business analysis department of Pillsbury Mills, Inc., Minneapolis, pointed out that pork and beef prices have been 10 to 40% higher than a year ago. He indicated that this was one factor in the broiler price strength though probably of less immediate effect than cold weather and disease losses.

While demand for broilers has been good recently, Mr. Alexander noted that if placements continue high, broiler prices will weaken further.

Meanwhile, during the week ended Jan. 25, reports indicate, Delmarva growers sent about 2.8 million broilers to market—10% less than the previous week and 15% below a year ago. There were reductions in some other areas, too.

A market news report this week indicated that as of Jan. 29, broiler prices at the farm were around 20-21¢ lb. in Arkansas; mostly around 19-21¢ in Delmarva; and mostly 21¢ in north Georgia. Slower demand and price declines of 1 or 2¢ were noted in a number of areas.

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Egg Placements, Broiler Starts Show Increase

SALISBURY, MD. — A total of 40,637,000 broiler eggs were set last week, 14% more than last year and 3% more than in the previous week.

Increases were reported in 14 of the 22 reporting states, with largest increases occurring in Georgia, South Carolina and California.

Growers last week started 28,415,000 chicks. This was 6% more than the previous week and 10% above the corresponding week a year ago. Increases in placements were reported in 16 of the 22 states. Largest increases occurred in Georgia, North Carolina, and Arkansas.

In Delmarva, growers started 3,540,000 chicks last week. This was nearly the same as a week earlier but 7% below the corresponding week of last year.

CITRUS PULP

(Continued from page 1)

temperatures in the low 20's and below, spread over most of Florida, engulfing the entire citrus region of the state. Snow flurries were reported as far south as the citrus belt for the first time in many years. Much of the fruit which had reached maturity or was nearing maturity and still on the trees, was frozen. A second cold wave did additional damage.

Best estimates are that one third to one fourth of the Florida fruit crop was lost as a result of this freezing weather. New growth and blooms for next season oranges were also damaged, and it is expected that the crop will be late next season as a result of this damage.

Most citrus pulp and meal processors had expected to produce a considerably larger tonnage of pulp and meal than last season, this estimate being based on the government estimate of the fruit crop before freezing weather.

1956-57 Production

The industry produced during the 1956-57 season 287,319 tons of pulp and 9,256 tons of meal. Including a carryover from the 1955-56 season, there were 321,954 tons of citrus pulp and 12,611 tons of meal available for the 1956-57 season. The price of pulp during the 1956-57 season was relatively stable at $35 ton, f.o.b. Florida producing points. Citrus meal fluctuated during the 1956-57 season from $25 to $30 ton. For the most part prices advanced on both pulp and meal as old crop supplies diminished and before new crop was available.

In anticipation of a large crop during the 1957-58 season, the price was again reduced during the early part of this producing season. After the freezing weather the prices began a move upwards, and at the present time major producers of citrus pulp are selling at $45 ton, f.o.b. shipping point, and citrus meal is selling at $35 ton f.o.b. shipping point.

Near Capacity

During January most citrus pulp and meal producers have been running at or near plant capacity due to the fact that a state regulation was adopted allowing fruit juice processors to utilize damaged fruit, so long as the damage did not exceed 25%, along with normal good fruit processing. There has been as much damaged fruit handled as possible in order to reduce the total freeze loss. This calls for temporary rush of raw peel and pulp to the citrus pulp and meal processors, and in some cases it was necessary for citrus pulp plants to dispose of excess peel.

This situation has slowed in the past 10 days or two weeks, and it is expected that running time will continue to fall as the early maturing type orange supplies run out. There is expected to be a three to four week period before producers will be able to run on the Valencia orange, which is expected to come in during the latter part of February.

While the fruit crop is estimated to be reduced from 25 to 30%, this does not necessarily mean that the total supply of citrus pulp will be reduced that much. Using frozen fruit, it will take more oranges to make the same amount of juice and therefore a larger supply of raw peel would be available to the citrus pulp and meal processors. On the other hand citrus processors are not able to handle the total amount of peel during the peaks of juice production and therefore some of this peel is lost from the production of citrus pulp and citrus meal.

Storage Factor

It is expected that this season will be short and fast from a producer's standpoint, while most seasons stretch over a seven or eight month period. More citrus pulp and citrus meal will have to be shipped from storage over a longer length of time this season. The smaller processors who are without storage will not be able to supply users for as long this season. At the present time some of the smaller processors are selling immediate shipment pulp at $2.50 to $5 ton under the general market. Few of the small producers are able to offer citrus meal. Without storage they can only offer their products during the producing season. Most larger producers who have adequate storage report a big movement of their current production is going into storage for shipment over the non-producing months.

At present it looks as though prices will hold around present levels and supplies should be adequate for demand under these conditions. Supplies moving into the Eastern Trunk Line territory have been curtailed due to the recent price advances, and most tonnage is moving within the southeastern states, with Florida by far the largest consumer of citrus pulp at this time. Citrus meal has experienced excellent demand for use in cattle pellets, and supply is very hard to uncover.

Rex E. Hubbard

JOINS STRONG-SCOTT—Rex E. Hubbard has become sales engineer for the milling division of Strong-Scott Manufacturing Co., Minneapolis. The appointment was announced by Ruxton Strong, executive vice president of the company. Mr. Hubbard will take over the work of Eustace Orvis, who is retiring after 38 years of servicing the national milling accounts for Strong-Scott, manufacturer of equipment for mixing, grinding and separating in the grain and feed industries. A graduate of Kansas State College, Mr. Hubbard previously worked for the Coleman Co., Inc., Denver. He has also served as an engineer in the corn milling division of General Foods Corp., Kankakee, Ill.

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Processors Assure Efforts to Protect Citrus Pulp Users

WINTER HAVEN, FLA. — Estimates at this time indicate that citrus pulp, meal and molasses production will be down approximately 30% this year, but members of the Citrus Processors Assn. are "making every effort to protect all users of citrus pulp, even in the face of increased demands."

This was pointed out by the association following a recent meeting of the group in Winter Haven.

Members of the association, representing citrus pulp manufacturers in Florida, agreed that the severe freeze damage sustained by the citrus industry in December and January will result in lower production of citrus pulp and molasses for the year.

However, the association said, "Because of technical improvements, cooperation among all segments of the citrus industry and favorable weather conditions since the freezes, it is felt that more pulp and molasses will be produced than was originally anticipated."

In 1956-57, it was noted, the industry produced some 356,000 tons of citrus pulp, meal and molasses. Current estimates indicate a reduction of 30% is expected for this year.

"Members of the processors' association have been making every effort to protect all users of citrus pulp, even in the face of increased demands," the association said. "Cattlemen and dairymen should continue close association with suppliers in order to protect their requirements for the balance of this winter and the coming summer."

NEVADA

(Continued from page 7)

speaker said, that feeding five times the recommended level produced only minimal antibiotic levels in blood and milk. Work still in progress indicates that 240 mg. fed daily for more than two years produced no harmful effects, and 500 mg. fed daily to cows for six weeks did not depress the cheese starter activity of milk from those cows.

Dr. H. H. Cole, head of the animal husbandry department at the University of California, told the audience that the latest theory on the cause of bloat is that there is a lack of scabrous or scratchy material in some feeds. Forage such as alfalfa tops is relatively smooth, and do not "tickle" the rumen. It is this tickling that promotes belching and prevents bloat.

Researchers worked for years under the assumption that it was the excess formation of gas from certain feeds that caused bloat. This theory has been refuted by the use of a mechanism which measures the amount of gas formed by various feeds. They found there is no recognizable difference in the amount of gas formed from a hay and grain mixture and from green alfalfa tops.

Two Bloat Types

There are two types of bloat, Dr. Cole pointed out. One is free gas bloat, and the other is frothy bloat. When some ingredient in the feed causes this frothing to occur, it becomes difficult if not impossible for the cow to belch and eliminate gas. The addition of oily substances such as tallow or vegetable oils to this feed has, in experimental work, eliminated this froth completely for a period of three hours.

Recommendations for a feeding program to prevent bloat include, he said, either feeding a scratchy hay such as sudan during the night while pasturing alfalfa during the day, or turning the cattle into a field of sudan at night, and pasturing alfalfa during the day.

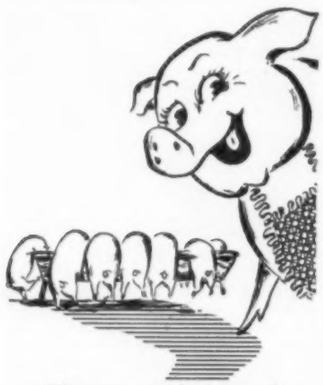
Green chopping seems to lessen bloat from alfalfa, because the cattle eat alfalfa stems along with the tops, which gives the "scratching" effect. The use of penicillin for bloat prevention was not effective after about 12 days, probably because the rumen microflora became resistant to its action, Dr. Cole concluded.

Dr. Joseph Stein, dairy husbandman with the Max C. Fleischmann College of Agriculture, University of Nevada, told the audience that a balance must exist between roughage and protein feeds for optimum utilization of both feeds. He pointed out that fine grinding of roughage moved the feed through the rumen so rapidly that the rumen microflora do not have time to work on it, therefore causing an actual decrease in digestibility.

Dr. Verle Bohman reported on the use of stilbestrol for meat animals. University of Nevada tests show significant gains from the use of stilbestrol, both fed orally and implanted under the skin of the ear. The use of both stilbestrol and Aureomycin further increased gain and feed economy and Aureomycin, used alone or with stilbestrol, decreased the incidence of liver abscess.

Dr. Kenneth Kuttler of the veterinary science department at the University of Nevada reported on work in progress on stiff lamb disease, also known as white muscle disease or muscular dystrophy. He said speculation at present is that the disease is caused by a complex series of factors. He has been able to produce white muscle disease by giving large doses of vitamin E-absorbing cod liver oil to lambs, which indicates that there is a tie-in with vitamin E. However, relatively vitamin E-free diets did not produce the disease. He speculated that, with the blood transaminase test, developed by Drs. Walter Dye and Clifton Blincoe, also of the University of Nevada, scientists may be able to determine more of the factors that are involved in the cause of the disease.

The final speaker of the day was Louis Isola, from Peoples Packing Co. in Yerington, Nev. He reported on current carcass demands, and the demands that he in turn must make on growers. He told listeners that he prefers a carcass that will dress between 550 and 600 lb. for steers, and some 50 lb. lighter for heifers. This is the weight that sells best to the distributor, he said.



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First Swine Day Set At Southern Illinois

CARBONDALE, ILL. — The first annual Swine Day to be conducted by the department of animal industries, Southern Illinois University school of agriculture, has been set for Feb. 12, J. E. Burnside, swine specialist, announced.

Problems of swine reproduction, modern feeding practices, management, disease control and profitable marketing will be taken up during morning and afternoon sessions.

Among specialists scheduled to lead discussions are Dr. H. L. Self, University of Wisconsin animal husbandry department; Dr. J. A. Hoefer, Michigan State University animal husbandry department; Dr. D. A. Brandly, dean of the University of Illinois college of veterinary medicine; Gustav Bohstedt, visiting professor of animal industries, and Walter J. Wills, agricultural marketing specialist, Southern Illinois University.

Sports Program Set For Toledo Feed Club

TOLEDO, OHIO—"Red" Smith, former general manager of the Toledo Mudhens and a well known sports figure, will be the guest of the Toledo Feed Club at its regular meeting Feb. 10. He will show pictures of the 1957 World Series.

The meeting is set for the Ritz Nite Club, with Louis Brewster as chairman.

MARKETS

(Continued from page 2)

to improve within the next few weeks due to new birds reaching maturity.

Baby chick placements remained high and continued to run consistently higher for a reporting period than was reported during the same period last year.

Supplies of small grains in the Southeast continued in tight supply and in some instances some feed manufacturers who normally shell considerable locally-produced corn found it necessary to bring shelled corn in from the outside, due to inadequate supplies of ear corn. Roughage material continued to be a problem and prices remained firm.

Production of citrus pulp, which has been at or near capacity for the past several weeks was beginning to taper off. It was expected that the shut-down period will probably last for three to four weeks between fruit crops. It was felt that prices, no doubt, will firm on this material, particularly those prices which have been available from producers with inadequate storage who have been discounting the market during the heavy producing time.

Cottonseed meal crushers in most all cases either ceased operations for the season or switched to the crushing of soybeans. This caused cottonseed meal and cottonseed hull prices to remain firm while an easiness was noted in soybean meal.

Dry lot feeding was being carried on in most all areas at a rapid pace, with practically all pastures reported to be killed by severely cold weather. Feed mill running time continued to be good and feed prices for the most part varied only slightly during the last week.

South Central

A modest improvement in formula feed sales enabled mills to fill out the

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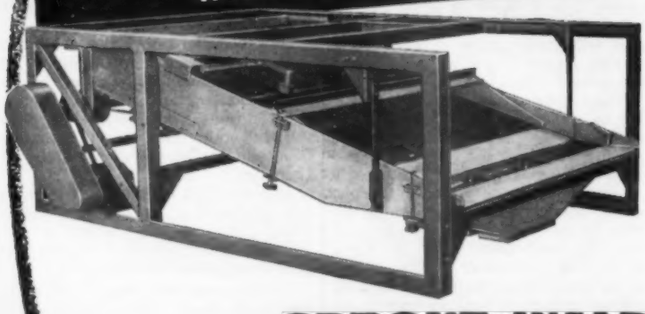

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full five days production schedule. There was an occasional temporary use of a ten-hour shift in place of the usual eight hours.

No convincing reason was advanced to account for the slowdown in orders the previous week and the recovery this past week. One mill operator, after checking his back records, said that it has not been unusual to find a short slow-down occurring the latter part of January.

Hog, poultry and cattle feeds, in that order, were most in demand. Contributing to the sustained usage of hog feeds were the highest January returns from hogs in four years and the lowest corn prices for this month since 1943. The corn-hog ratio for January was one of the best ever known. Hogs were not being rushed to market. They were being held and fed to heavier weights with the large supply of wet corn that was available.

Prices advanced another $1 a ton, mostly because of the soaring millfeed and animal protein prices.

Mountain States

Formula feed sales continued in the same slow vein. The trend was not too unexpected for this time of the year—normally a slow season.

Turkey producers indicated there will be fewer birds by about 5% from last year. Placements had not progressed enough to show how close actual feeding will follow the estimate.

Egg production was down from last year. Farm flocks were down 11% from a year ago. This was a continuation of a strong trend away from the small farm flock.

Some observers were optimistic about formula feed sales in the spring although business is definitely sluggish at present.

Pacific Northwest

Only minor price changes were posted during last week's moderately active Pacific Northwest feed market trading.

Oilseed meal prices carried a firm undertone with soybean meal priced 50¢ a ton higher. Fish meal prices were weak with sales off 5 to 10¢ a protein unit.

Wheat millfeed listings held firm in front of limited trading with nearby shipment feed short of the full trade call. Some flour mills reported that April millfeed shipments were being booked at $1 to $2 a ton lower prices.

Oregon and Washington millfeed production totaled 5,450 tons compared with 5,700 tons the previous period.

Open winter weather continued to restrict supplemental feeding throughout the Pacific Northwest, however cheaper hay and feed grain prices have been an off-setting factor.

Feed grain prices averaged stronger last week with moderate advances for barley and corn.

Formula feed sales were maintained with a seasonally larger movement of broiler and poult mashes. Dairy feeds moved slow'y with slightly higher prices posted as the reflection of recent millfeed price gains. Prices for other brand feeds were generally unchanged.

Portland producer-paying prices for eggs declined 1¢ doz. from the previous week and are now below those of one year ago. Dealers quoted producers a 35-37½¢ doz. range for AA large eggs with A large packs valued at 34-36½¢ and A mediums at 33-35½¢.

Ohio Valley

Continuing cold weather with daily flurries of snow and rain in the Ohio Valley tended to maintain sales of formula feeds and supplements at the high tonnages of recent weeks. Several mill spokesmen expressed the opinion that the larger-than-usual tonnages of wet corn harvested last fall were rapidly nearing depletion, and this was expected to boost sales of formula feeds even higher during coming weeks.

All segments of the market were strong, with sales of hog and dairy feeds being especially active. Sizeable purchases of farm animals for herd and flock replenishment were said to be under way. With the stocking of turkey poults starting soon, there was every prospect that the demand for all types of formula feeds would continue to improve.

Deliveries of cattle, hogs and sheep at area stockyards continued to decline, with resultant steady to higher prices for virtually all grades. A side result was the inability of rendering companies to obtain sufficient supplies to enable them to fill the large flow of orders for such items as bone meal, meat scraps and tankage. One official said his firm could fill orders for several thousand more tons weekly of these items than can be produced at the plant, because area slaughterers "can't begin to meet our requirements."

Two-shift operations were continuing at all area mills, with a number of them working third shifts and, in some instances, finding it necessary to operate over weekends also. Formula feed prices remained steady to easier.

California

No change of any consequence took place in the formula feed business. Prices remained more or less steady and demand held just fair. Mills were buying ingredients on a very close basis with one eye on tax day, the first Monday in March.

Egg prices were easier but live poultry values advanced 1 to 2¢ at the ranch, and ice-packed fryers were strong at around 38½¢. During December some 7,743,000 chicks were hatched in this state of which 3,845,000 were broiler-type and 3,898,000 were egg-type. This represented a slight increase in broilers and a decrease in egg-type.

Recent figures issued by the state showed that turkey growers planned to raise about 1 million more birds this year than last. However up to this time, hatcheries reported sales were running considerably under this time a year ago.

Arrivals of new feeders in custom feed lots remained at a slow pace with values holding close to 23½@24¢, and with fat cattle around 26@27¢. Late in the week good general rains covered most of the state and the condition of pastures and the new grain crop was reported as very favorable.

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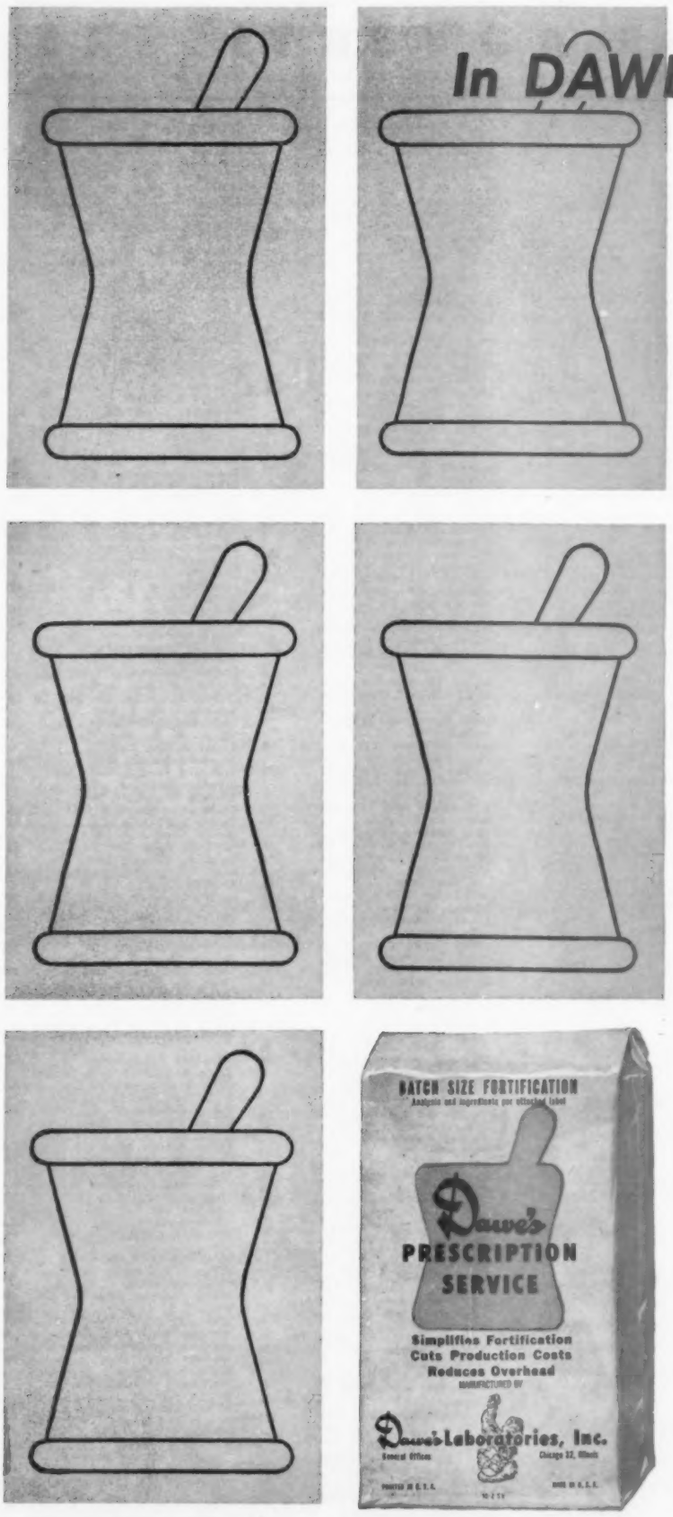

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